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DOMESTIC ENGINEERING

Plumbing & Heating Contracting and Merchandising

SPEND FOR THE HOME IN 1932

Buy Plumbing & Heating

Join the Campaign
FOR THE
Building Industry . . . Page 24

JANUARY 9, 1932

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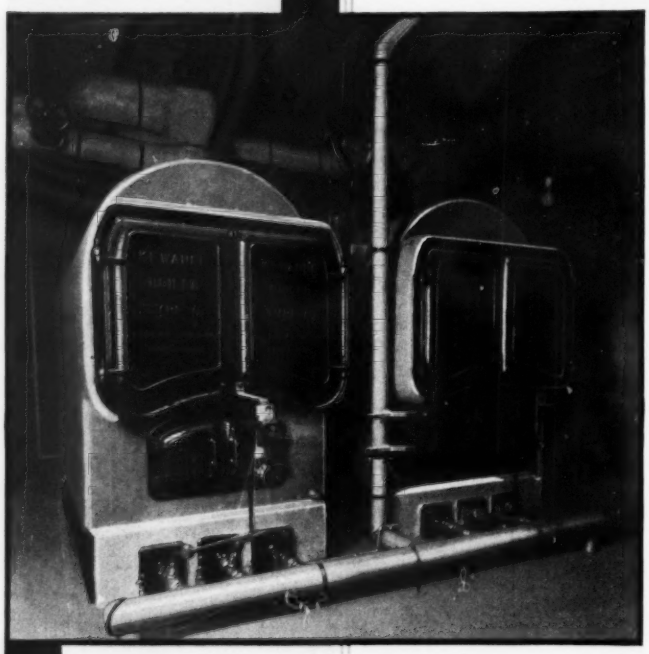
V.138

KEWANEE STEEL BOILERS



FOR COAL
Hand or Stoker Fired
OIL or GAS

The use of mechanical means of getting fuel into a boiler does not, in any way, change the fact that the boiler must be "right." After all, while the Oil or Gas Burner or Coal Stoker *makes the heat* it is up to the boiler to *use that heat* economically.

So no matter how efficient an oil or gas burner or coal stoker may be, the heating plant as a whole is bound to be wasteful unless the boiler is properly designed, proportioned and built to do its job.

Photograph shows two Kewanee Type "C" Boilers, burning gas in the JUNIOR-SENIOR HIGH SCHOOL, CONCORDIA, KANS. This modern building designed by Proudfoot, Rawson, Souers & Thomas is typical of the modern schools which have selected Kewanee.

The Efficiency of Any Heating Plant Depends Primarily on the Boiler

Since the first days of steel heating boilers — when coal, fired by hand, was the only fuel used — Kewanee Boilers have been recognized as the most economical in the use of fuel.

Today, with oil, gas and stoker firing increasing in popularity Kewanee is again proving that *it is the right boiler to use*, no matter what the fuel.

Careful tests made "on the job" and in our own laboratory have proved the ability of Kewanee Boilers to handle every kind of fuel to the complete satisfaction of the building owners.

More fine schools are heated with Kewanee Boilers than by all other similar makes combined. A copy of our book "Kewanee in Service in Schools" illustrating some of them will interest any one concerned with school buildings.

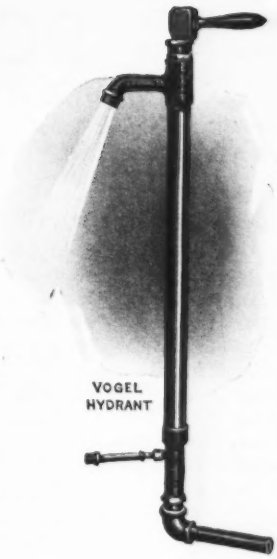
KEWANEE BOILER CORPORATION

division of American Radiator & Standard Sanitary Corporation

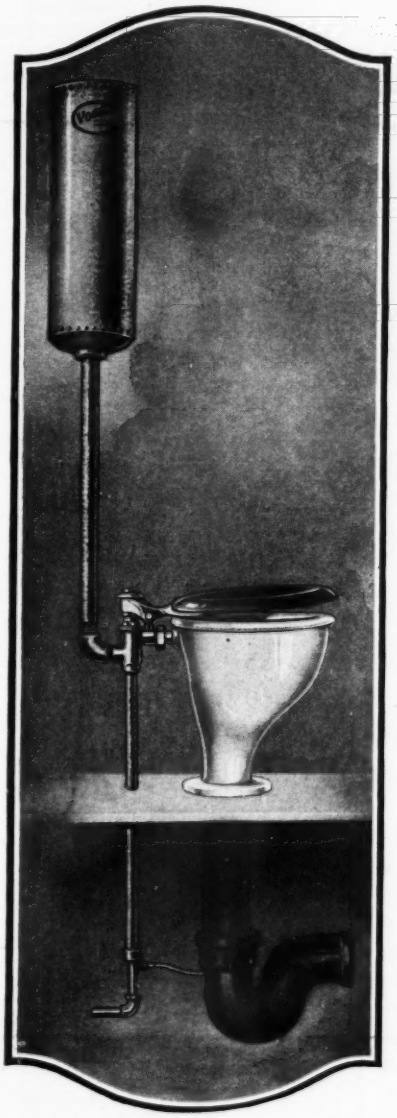
KEWANEE, ILLINOIS — *Branches in Principal Cities*

MEMBER OF STEEL HEATING BOILER INSTITUTE

For 25 years Vogels have proved what they will do



VOGEL FROST-PROOF HYDRANT



Vogel Number One Frost-Proof Closet. Sturdy in construction, simple in operation—half a million in use.

• VOGEL FROST-PROOF Closets and Hydrants have done their work so well for almost 25 years that there is no reason for considering anything else for a frost-proof installation.

Vogels have *proved* what they will do, and have made hundreds of thousands of dollars profits for plumbers—and they have always been sold through plumbers. *So why consider anything else?*

Literature imprinted with your name and address is available

•

JOSEPH A. VOGEL CO.

Wilmington, Delaware

St. Louis, Missouri

VOGEL PATENTED *Frost-Proof* Products

DOMESTIC ENGINEERING

Plumbing & Heating Contracting and Merchandising

Established 1889

Vol. 138, No. 1 | January 9, 1932 | Whole No. 1960

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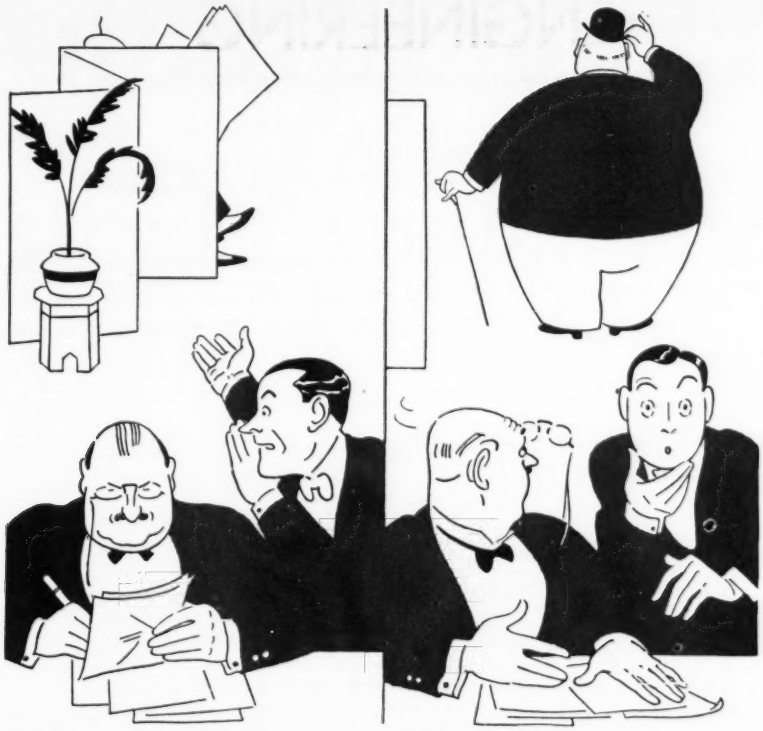

"He's a six-footer" . . . . "Measured which way?"

Can figures be facts if they are wrongly arrived at?

In considering performance of heating systems, no analysis or comparison based on hasty acceptance of inaccurate measurements or of incomplete facts, can be safe, or useful.

Unless *all* the factors which may influence the result have been checked, to speak of, for example, "lbs. per sq. ft. per season" means just as little as to say "twice as long as a piece of string."

Altogether there are 45 of these variable factors,—each of which may affect the requirements and results for better or worse. To allow any one of them to be forgotten or disregarded may lead to faulty conclusions.

Engineers, architects and heating contractors will find the related subjects of heating steam consumption analysis, estimating and heating cost accounting, as presented by Warren Webster & Company, of vital interest.

A request for further details will bring a Webster steam heating specialist to discuss this vitally important subject.

A Heating System for Every Need and Every Purpose

Heating requirements vary so widely that no one type of heating system can be expected to provide the greatest return on the dollar invested in the heating equipment for all types and sizes of buildings. Realizing this, Warren Webster & Company have consistently developed an entire group of Webster Systems of steam heating to provide *a heating system for every need and every purpose.*

Webster MODERATOR System provides "Controlled - by - the-Weather" heating and makes possible new methods of operation and new standards of economy. Can be applied to any existing steam heating system of sufficient size.

IMPROVED Webster Vacuum System provides distribution balanced from the start—the supply of steam to each radiator is so equalized that all radiators get steam at the same time and in substantially the same proportion, regardless of distance from the boiler. May be supplemented by HYLO Vacuum Variator, permitting manual control by building operator. Applicable to new or existing installations.

IMPROVED Type "R" System for residences and larger buildings as well, combines advantages of steam heating with advantages of hot water, but without limitations. Meets fully the operating requirements of newer fuels, newer types of radiation and newer thermostatic controls. Also provides better-than-ever heating service with old radiation and old controls.

Full details of any or all of these systems will be furnished on request.

Warren Webster & Company, Camden, N. J.
Pioneers of the Vacuum System of Steam Heating
Branches in 60 Principal U. S. Cities
Darling Bros., Ltd., Montreal, Canada

-since 1888
Webster
Systems of Steam Heating
a155

This is one of a series of advertisements discussing the factors affecting heating steam consumption. The purpose of the series is to call attention to the methods of heating steam consumption analysis, estimate and heating cost accounting developed by Warren Webster & Company to provide a reliable basis for comparing heating system efficiency. Actual detailed facts and figures of steam consumption of a number of Webster Systems of Steam Heating, prepared in accordance with these methods, are available for your examination.

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Between Ourselves

THE reproduction of the poster on the front cover is the first announcement of a slogan devised in the offices of DOMESTIC ENGINEERING *as part of a campaign to unite the building and home industries in their first united sales effort. Complete details appear on Page 24 and on the inside back cover.*

Your Editor

BASED on the undoubted fact that the American people, having had their incomes reduced, are doing much less "running" and are consequently doing more entertaining in the home, the "Spend for the Home in 1932" campaign will strike a responsive note. It means that the American home is coming into its own. Forced to entertain at home, people will demand better facilities of all kinds. On this fact rests assurance of success for this campaign which, by all the signs, is going to be adopted by the building and home industries.

WHEN large volumes of steam and hot water are suddenly discharged into the house drain, into the house sewer or into the public sewer, the water instantly flashes into steam, expanding in all directions. When this hot water is discharged into the house drain, the entire plumbing system immediately fills with steam, and there is great danger to the piping, due to the expansion that would take place in it. Especially is this true where caulked joints are used. An article commencing on Page 50 describes the methods employed in a large public building to prevent damage to sewers and house drains as a result of the careless discharge of steam and hot water.

YOU will find a wealth of valuable material in the Plumbing and Heating Merchandising section in this issue, including another authoritative article on the selling power of light, written by a lighting expert of Nela Park. The author has many suggestions to make as to ways of getting better lighting effects, and you will find these helpful in improving the appearance and effectiveness of your display window and showroom. The other article in this section tells how Harold Best, plumbing and heating dealer in Allentown, Pa., is using the classified section of his local newspaper as an advertising medium. He says: "I have found that for the money invested the classified display advertisement is by far the most profitable that I have used."

"I WOULDN'T be without DOMESTIC ENGINEERING. It's the best magazine on the market." — William Simon, plumbing and heating contractor, Westwood, N. J.

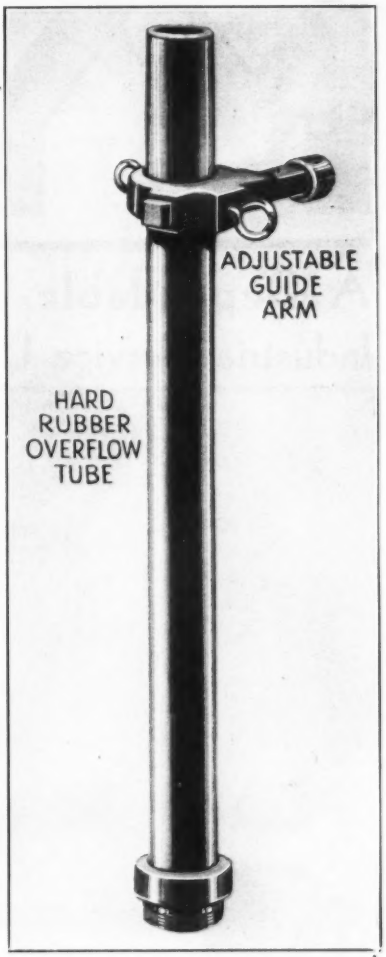
UPON coming to the AUTOMATIC HEAT section you will find grouped together for your convenience a number of articles designed especially for the heating contractor-dealer who is selling and installing this type of heating equipment. One of the feature articles in the section deals with oil heat in a small central plant; another tells how displays were used by a dealer to boost gas-fired boiler sales; and a third gives some valuable pointers on combustion in domestic systems of heating.

IN large-sized building projects, where the foundations are carried far down below the surface of the ground, the plumbing contractor encounters difficult conditions, for plumbing equipment must be provided for the basement and sub-basement floors. In many instances basement ceilings must be so high that the floor of the basement is at a much lower level than the public sewer. Often conditions that are purely local, or conditions entering into the construction or character of the building, will make necessary the handling of low level drainage. In an article commencing on Page 26, R. M. Starbuck describes in detail the sub-drainage system employed in a large public building.

BEFORE closing we want to say just one more word about this idea, "Spend for the Home in 1932." The campaign is progressing rapidly and the next issue of "Domestic Engineering" will give you further particulars as to how it can be best applied to the plumbing and heating industry. This is the biggest booster the building and home industries have ever had and you will want to follow every development.

The man who is so busy that he does not have time to read his trade paper is like the man who was so busy chopping wood that he did not have time to sharpen his axe.

This HARD RUBBER STOKES ADJUSTABLE GUIDE ARM *and* OVERFLOW TUBE *with reducing bushing is* A GREAT IMPROVEMENT!

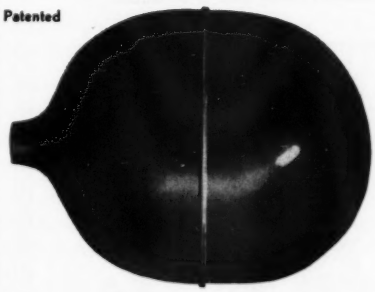


You can see by a glance at the picture how this Guide Arm can be swung around the overflow tube, and at the same time pushed in or out so as to make it easy to connect with the tank ball.

In addition, being of HARD RUBBER, it is not subject to corrosion. Investigate NOW this profitable item for 1932.

ASK YOUR JOBBER

Patented



STOKES HARD RUBBER FLOATS

Whether oval, round, or of a special size and shape, STOKES HARD RUBBER FLOATS are dependable under all service conditions. As they will neither rust nor corrode, they are far superior to the ordinary copper floats. They are well worth immediate investigation—ASK YOUR JOBBER.

Jos. Stokes RUBBER CO.
Trenton N.J.
Canadian Plant: Welland, Ontario

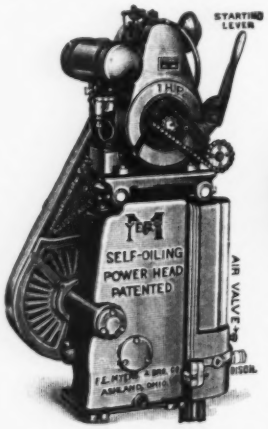
Look for the Mark of Quality

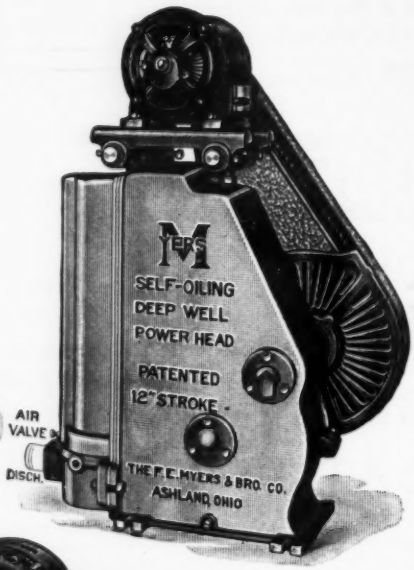
HARD RUBBER IN EVERY CONCEIVABLE FORM—MOULDERS OF PLASTICS

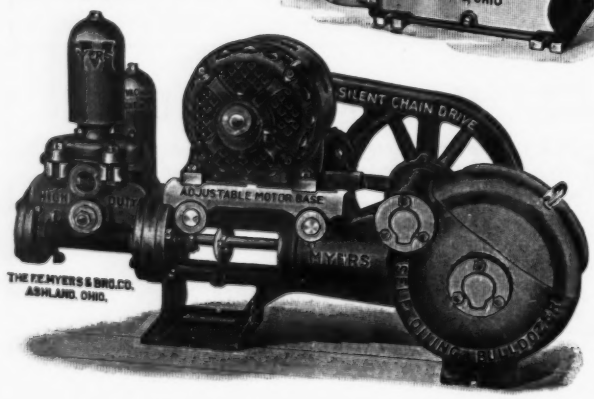
Moulders Since 1897

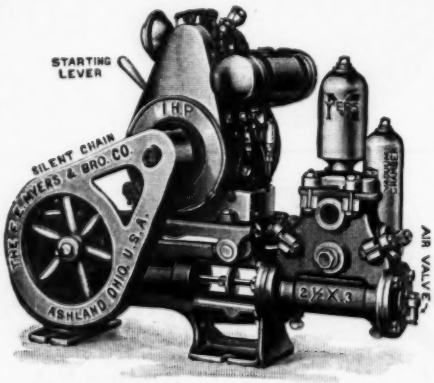
MYERS

A Dependable Pump for Every Type of Home or Industrial Service Up to 10,000 Gallons of Water Per Hour









Factories, mills, homes, institutions the world over—hundreds of thousands of them—rely for their water supply on Myers Pumps and Water Systems. In cities, everywhere, countless Myers Pumps are at work serving many commercial and industrial uses.

Users everywhere have depended with absolute confidence upon Myers Pumps since 1870. Distribution and dealers have based their business profits upon the Myers Line for a generation.

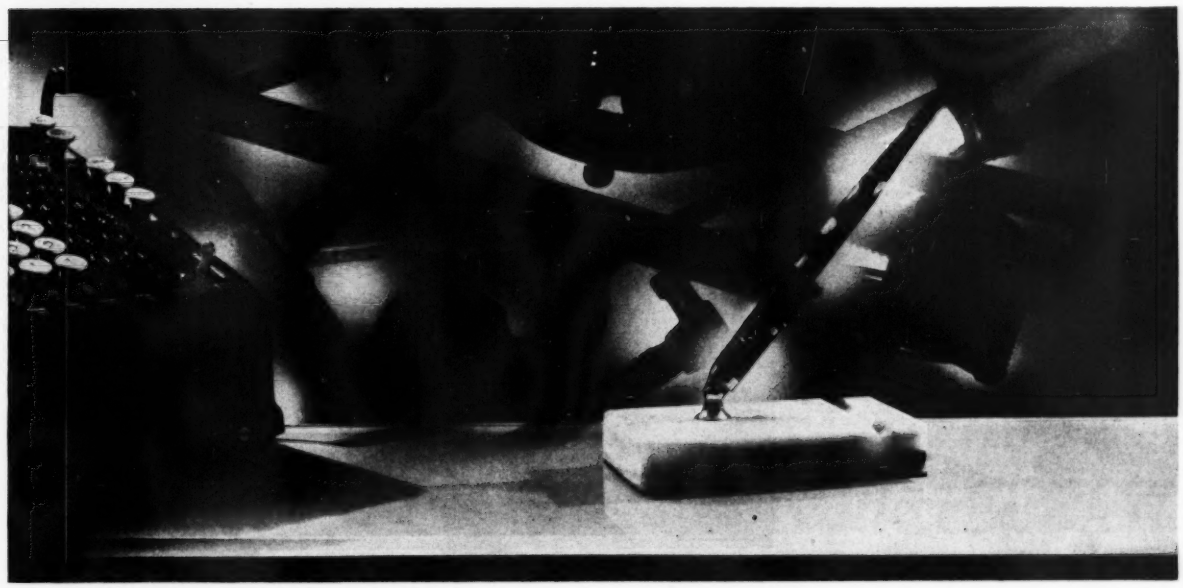
The Myers Line of individual water systems is the most complete in the world. It includes compact standardized units for operation by hand, windmill, gasoline engine or electricity. Models for both deep and shallow wells, in capacities from 250 to 10,000 gallons per hour. All Myers Electric Water Systems are entirely automatic, self-starting, self-stopping, self-oiling.

Myers can fully meet every requirement. Plumbers, architects, builders and engineers everywhere recommend Myers Self-Oiling Power Pumps and Water Systems for their efficiency, economy and complete dependability. Send for interesting catalog and information.

Take Off Your Hat To The MYERS
PUMPS · WATER SYSTEMS · HAY TOOLS · DOOR HANGERS

THE F.E. MYERS & BRO. CO.
ASHLAND, OHIO.
ASHLAND PUMP AND HAY TOOL WORKS

PUT DOWN YOUR TOOLS
. . . and pick up your pen



WE don't know where you're going to read this ad. Maybe you're on the way to a job. Maybe you're home with the wife and kiddies. Or maybe you're in the shop trying to figure out why you aren't making more money.

Whatever you're doing, take a minute off and read the rest of this for *it's about your business and your pocketbook.*

Just so you'll know whom you're talking to, this is a Church ad. We make toilet seats and you know all about them, so we aren't going to waste your time talking about why Church Seats are the best made.

After all, what you're interested in is what seat sells best and the only answer we ever heard a plumbing dealer give to that is—Church.

What we *do* want to talk with you about is making $1.50 instead of $1.00. If you like that kind of conversation read on.

IN 1932 you're going to sell quite a few toilet seats, some on replacement jobs, some for new houses, some over the counter. If you've got a big business you may sell two or three hundred. If it's small—two or three dozen.

What we want to see you do is make more money on the seats you do sell—whether it's two dozen or 2,000.

Here's our friendly suggestion:

Today the easiest kind of a toilet seat to sell is a white seat. That wasn't so ten years ago. But we started advertising in 1922 and now everybody wants a white seat.

Of course most people think that a white seat is a Church Seat. After all, they aren't master plumbers and so they don't know that a *sprayed* seat looks like a *sheet-covered* Church Seat.

Now, there are two ways for customers to find out.

One is to let them find it out after they buy an ordinary white seat—when it begins to chip, crack and the paint starts peeling off.

The other way is to take a few minutes and explain the difference between a sheet-covered and sprayed seat before your customers buy. And believe us, it's the safe, profitable way.

YOU may never get a kick from the people you sell ordinary painted seats to. Most people don't kick. They just buy elsewhere. But the big point is, you make so much more money when you sell a genuine Church *sheet-covered* Seat.

It takes the same rent, the same light, the same help, the same bookkeeping to sell a painted seat as a Church Seat—*and every time you sell a Church Regal Seat for $5.00 you make (on the average) 50% more dollar profit than on the sale of a sprayed or painted seat.*

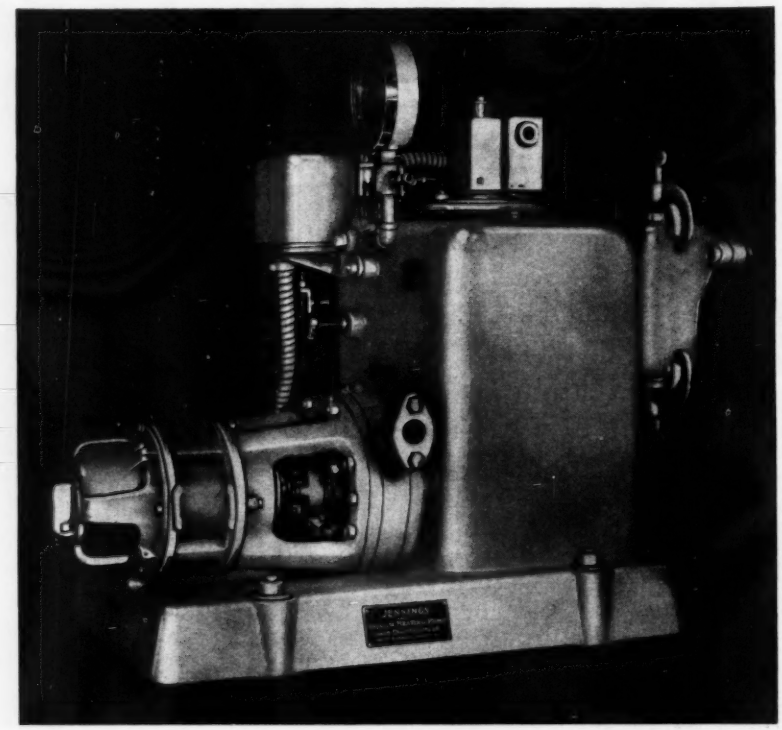
Now you know why we say: "Put down your tools and pick up your pen". Figure your *dollar* profit right now. See how many good American dollars you make on every 100 sprayed seats as against 100 Church Seats.

Remember—every Church Seat is *sheet-covered.* That's all! And many thanks for your time.

C. F. CHURCH MANUFACTURING CO.

Support *your* Reputation

with worthy equipment



GOOD will, the foundation of your business, rests largely upon the performance of the equipment you install. When you put in a Jennings Pump, you can be sure that it will serve satisfactorily.

The Jennings Unit Manifold Vacuum Heating Pump, distinguished like all other Jennings Pumps by the Nash trade mark, is designed to serve return line vacuum steam heating systems of 10,000 sq. ft. of radiation and under. It can be relied on to keep return lines and radiators always free of air and condensation, permitting the system to function perfectly at all times. The boiler, under vacuum, generates steam at a lower temperature. Noticeable fuel economies result.

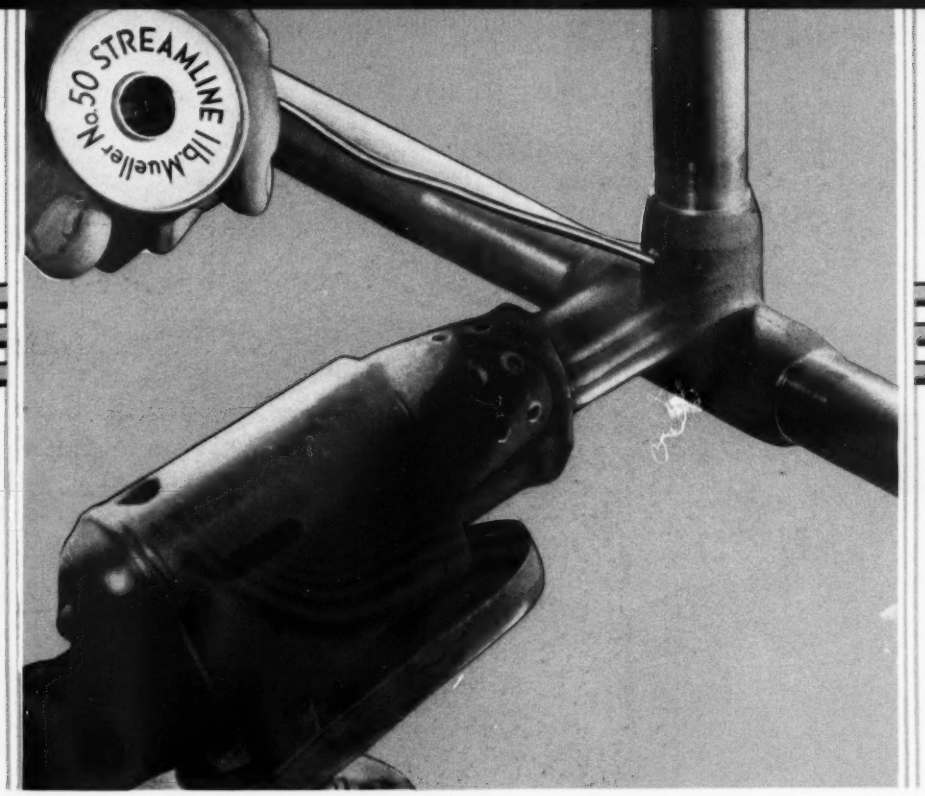
For complete information on the Unit Manifold type of Jennings Vacuum Heating Pump, write for bulletin 87.

Size U Jennings Vacuum Heating Pump, Unit Manifold type. Capacities: 9 g.p.m. of water and 3 cu. ft. per. min. of air. Recommended for return line vacuum heating systems of 10,000 sq. ft. equivalent direct radiation.

VACUUM PUMPS AND COMPRESSORS FOR AIR AND GAS ▸ ▸ RETURN LINE AND AIR LINE VACUUM STEAM HEATING PUMPS ▸ ▸ CONDENSATION PUMPS ▸ ▸ FLAT BOX PUMPS ▸ ▸ CENTRIFUGAL PUMPS ▸ ▸ SUCTION (SELF-PRIMING) CENTRIFUGAL PUMPS ▸ ▸ SUMP PUMPS ▸ ▸ SEWAGE PUMPS ▸ ▸ PNEUMATIC SEWAGE EJECTORS

NASH ENGINEERING COMPANY, 41 WILSON ROAD, SOUTH NORWALK, CONN.

Jennings Pumps



Some of your competitors are meeting the figure for Iron Pipe and Threaded Fittings with STREAMLINE *copper pipe and fittings*

The cost of a Mueller STREAMLINE installation is comparable to iron for the following reasons:

1. No insulation. Only in exceptional cases is it necessary to insulate hot water and steam lines.
2. Smaller pipe sizes can be used.
3. Short ends of pipe need not be wasted.

Owners, builders, architects and engineers expect to pay more for a copper installation than they do for iron—and justly so.

In this combination of low cost, and a recognition by your customer of the fact that copper is worth more than iron, lies your opportunity for greater profit.

Also, an installation made with Mueller STREAMLINE fittings and hard copper pipe means a job that is absolutely leak-proof. Rust cannot corrode it. Expansion cannot work it loose. Vibration cannot make it leak. The joint is really stronger than the pipe itself.

Mueller STREAMLINE fittings are sold in full range, and in sizes from $\frac{1}{4}$" to 6", inclusive. If you are not familiar with the profit opportunity in this new patented joint, consult your jobber—or write for our catalog.

Mueller Brass Co.

PORT HURON, MICHIGAN

MUELLER BRASS CO. OF CANADA, LTD., TORONTO, ONT.

Three Generations of Brass Making

(134)

A LITTLE BALL COCK SOLD A $700 JOB!

"SIX MONTHS ago, I took Sherwood's tip on selling remodeling jobs. I went out with a Sherwood Ball Cock and made in the neighborhood of 200 calls.

"I sold nearly 80 ball cocks and in addition moved a lot of faucets, toilet seats, radiator valves and eight or ten closet combinations.

"The other day I received a telephone call from one of the families I had installed a Sherwood for. They asked me to come over and look their bath room over. I did. It was a $700 job before I got through with everything they wanted.

"And a little ball cock did the trick, for these people frankly admitted if I hadn't called on them with the Sherwood they probably never would have given a lot of thought to plumbing and certainly wouldn't have made the changes at this time."

Why don't *you* "take Sherwood's tip"? Order several from your jobber and start tomorrow. Sell Sherwoods. Their performance will sell you.

SHERWOOD BRASS WORKS, Jefferson and Mt. Elliott Aves., DETROIT

REPRESENTATIVES: J. A. Riordan Co. (Inc.), 1600 E. 7th St., Los Angeles—303 Colman Bldg., Seattle—955 Bryant St., San Francisco—E. S. Thompson, 2401 Chestnut St., Philadelphia
Fred G. Hoffman, 831 Edgewood Ave., Trenton, N. J.—Fred S. Wilsey, Plymouth Bldg., Minneapolis—Geo. W. Smith Co., 348 W. Penn Pl., Pittsburgh

SHERWOOD Ball Cocks

Published in the interest of Progressive Plumbers and Steamfitters and incidentally in the interest of the N.T. & M. W. Vol. 2, No.1. Price: 1 Order

Let's Get Off Our Tail!

Friends:

Well, we've kissed old 1931 goodbye--and that isn't all we kissed goodbye. You may have kissed him, but what I did to him no one should do to an old man. To tell the truth, I kicked him on his departure.

But if the Old Year didn't have any more nerve than some of the American people did, a kick on his departure didn't hurt him any. We were all as jumpy as a man with St. Vitus dance caught in traffic, and as leery as a fellow crossing the border with two flasks in his hip pocket.

Old 1931 will go down in history, which is very appropriate because everything else went down. Just this last Christmas, a man who wanted to give his little boy a railroad train didn't have to give him a toy one. He could get a real one just as cheap.

But young 1932 will be different. He has more sense than his pa had; and, if you doubt it, ask your own boy what he thinks about it. Young 1932 starts off full of pep and vinegar. He may be only a pup, but he isn't sitting on his tail and howling because it hurts him.

We are starting all over, and if we all start all over the depression will be all over. Dave Park of Crane Co. said that what we ought to do is to take the d-i-e out of depression and leave just the p-r-e-s-s o-n. That is what young 1932 will do.

When a pallbearer comes around now with a sob story, tell him that was last year. If that doesn't do, do what I did to old 1931. This is a new deal, a time for new ideas and new Nye dies. Let's get off our tails and quit howling.

Yours for the New Year,

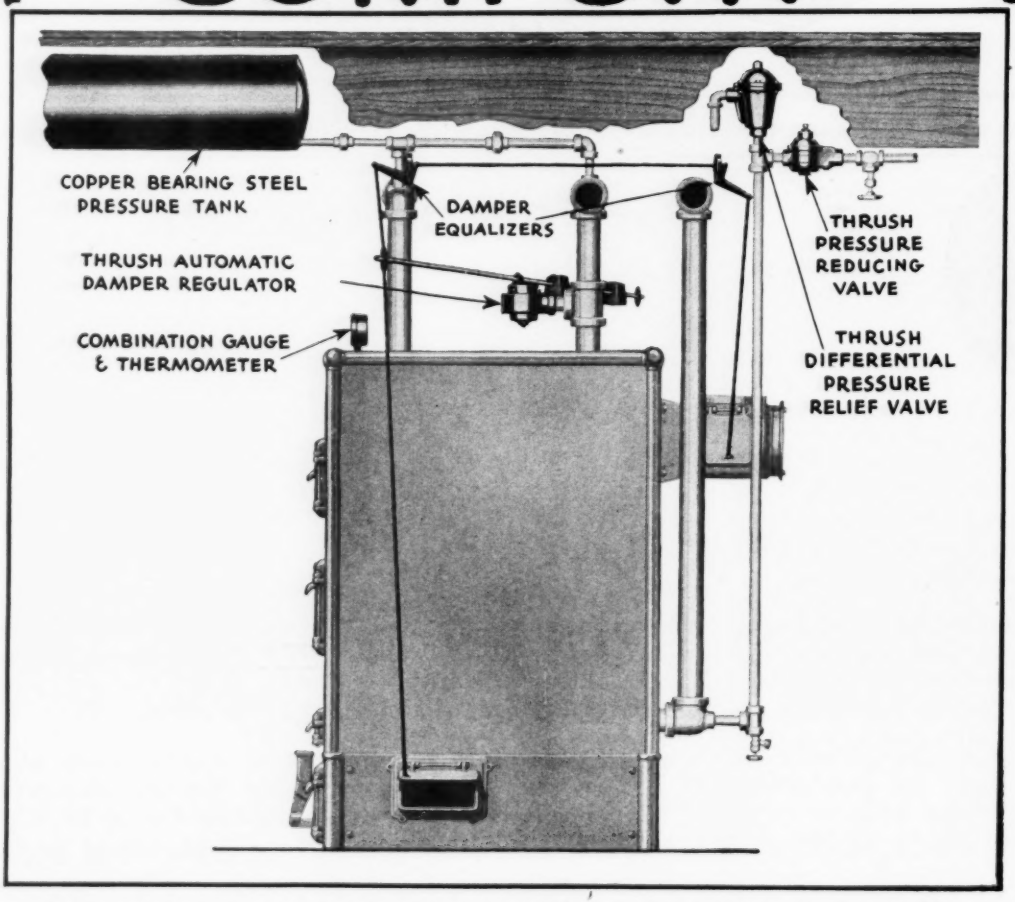
Harry G. Nye

(Copyright, 1932 by Harry G. Nye. All rights reserved)

(Otherwise known as The Nye Tool & Machine Works)

THE NYE TOOL & MACHINE WORKS
Manufacturers of High Grade Pipe Tools
4120-30 FULLERTON AVE. « « « « « « « CHICAGO, ILL.

HERE'S REAL HOME COMFORT


COPPER BEARING STEEL PRESSURE TANK
THRUSH AUTOMATIC DAMPER REGULATOR
COMBINATION GAUGE & THERMOMETER
DAMPER EQUALIZERS
THRUSH PRESSURE REDUCING VALVE
THRUSH DIFFERENTIAL PRESSURE RELIEF VALVE

PREFERRED BY HEATING CONTRACTORS

Thrush Class AA System of Hot Water Heating has long been recognized as the finest domestic heating system. Thrush System is economical to install and is completely automatic in operation. The Differential Pressure Relief Valve *positively* relieves excessive pressures and the entire equipment will give many years of trouble-free service. These are the things you want to know when you recommend a heating installation to one of your customers.

Our staff of trained heating engineers are at your service and will promptly furnish you with detailed installation drawings.

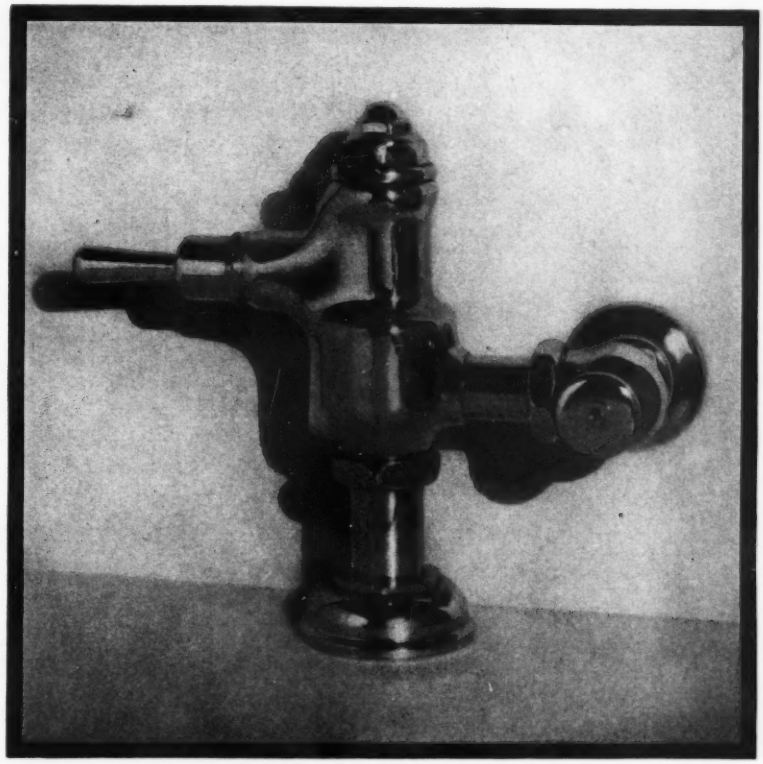
SEND FOR OUR NEW AND REVISED PRICE LIST—ADDRESS P. O. BOX 359

H. A. THRUSH & COMPANY

Pioneer Builders of Hot Water Heating Equipment

PERU, INDIANA

SO MUCH DEPENDS ON



DESIGN

THE Scovill Flush Valve, designed for simplicity and service, has already proved itself to many plumbing contractors. It is today giving excellent service in a number of important buildings throughout the country.

Just consider some of its advantages in design . . . and you will see why you should use the Scovill Flush Valve. It is planned for quick and easy installation. Roughing-in dimensions are standard. The length of the flush may be adjusted from the outside, without cutting off the water. The valve's self-lubricating plunger and self-cleaning by-pass assure years of smooth, trouble-free operation. And its special construction makes it efficient even under low pressures, given sufficient volume of water.

All materials used in the Scovill product are tested in our laboratories for corrosion-resistance and wear. Remember that behind every valve stand the resources and reputation of the Scovill Manufacturing Company . . . founded in 1802.

There is a Scovill Flush Valve that will meet your requirements. Send for a catalog. It presents in concise form, for ready reference, the entire line of valves, with roughing-in dimensions and prices for each. Write for your copy today.

SCOVILL MANUFACTURING COMPANY
PLUMBERS' BRASS GOODS DIVISION
WATERVILLE CONNECTICUT

A complete line of Flush Valves, Shower Bath Fixtures, Tubular and Miscellaneous Plumbers' Brass Goods for General Plumbing Requirements.

Scovill®

Compare the Bathroom Fixtures You Select With TE-PE-CO

IN ALL things made by human hands there is standard of excellence with which we make comparisons. In plumbing fixtures it is "Te-pe-co." Take any standpoint you want—beauty, luxury, sanitation or durability—and you find that Te-pe-co concedes nothing on any point.

From a battery of factory wash-stands to the most luxurious of modern bathroom appointments Te-pe-co two-fire vitreous china fixtures are represented by a variety of designs and prices that meet the most critical tastes, yet comply with modest appropriations.

Send for our interesting plan book "Bathrooms of Character."

Our Guarantee

We make but one grade of ware—the best that can be produced—and sell it at reasonable prices. We sell no seconds or culls. Our ware is guaranteed to be equal in quality and durability to any sanitary ware made in the world. The Te-pe-co trade-mark is found on all goods manufactured by us and is your guarantee that you have received that for which you have paid.

THE TRENTON POTTERIES COMPANY
TRENTON, NEW JERSEY, U. S. A.

National Showrooms
New York City—101 Park Ave.
Entrance on 41st St.
Philadelphia—Architects' Bldg.
17th and Sansom Streets

Branch Offices
Boston and Chicago

Export Office:
115 Broad Street, New York City

TE-PE-CO
ALL-CLAY PLUMBING FIXTURES

WOLVERINE

"Tested and Guaranteed"

The "Tested and Guaranteed" tag on all Wolverine Compression Work means to the Master Plumber . . . . .

———the highest quality of material and workmanship.

———the most rigid inspection of all parts.

———factory installation under actual operating conditions.

———33 years of engineering knowledge of the Master Plumber's needs.

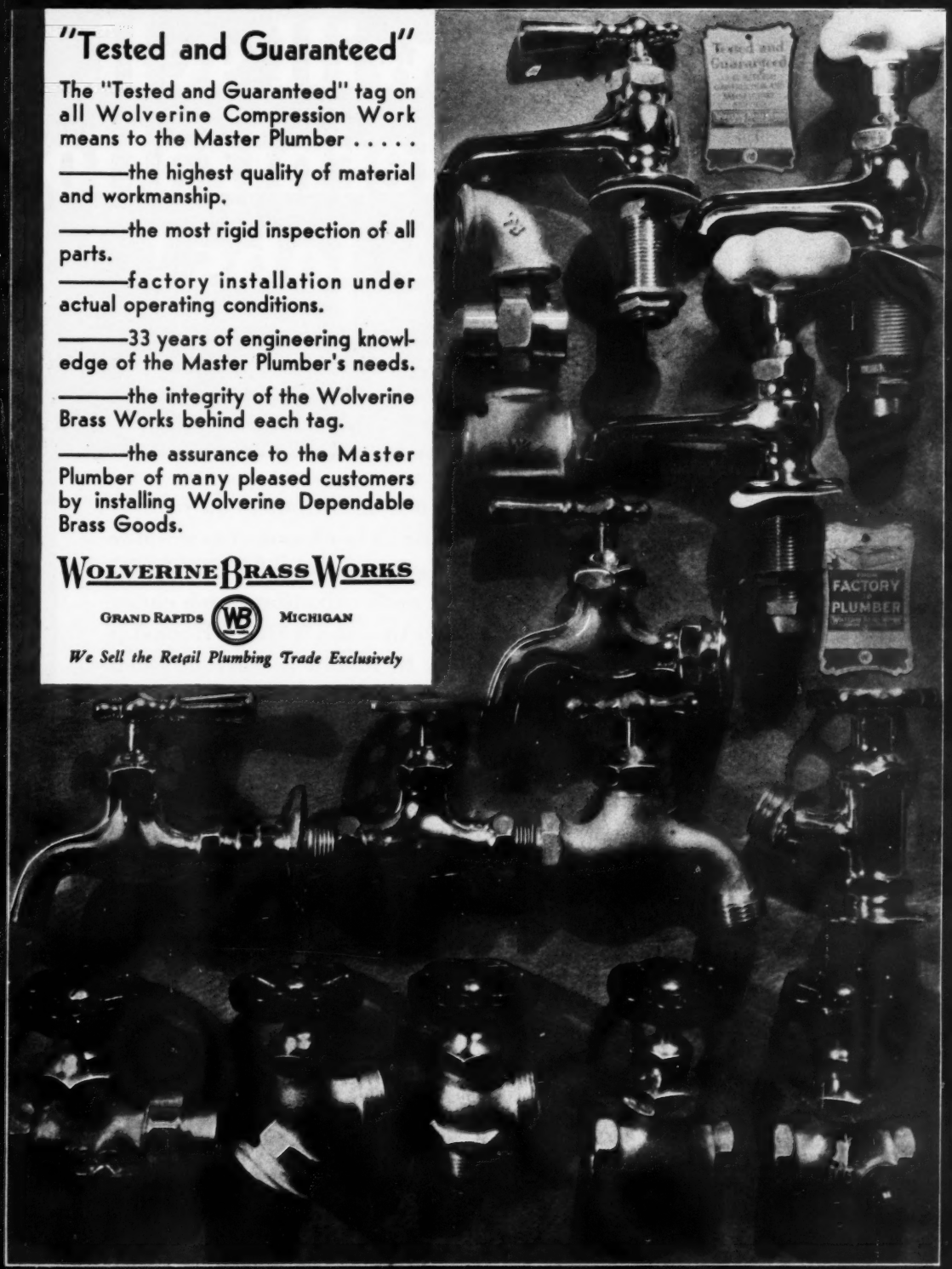
———the integrity of the Wolverine Brass Works behind each tag.

———the assurance to the Master Plumber of many pleased customers by installing Wolverine Dependable Brass Goods.

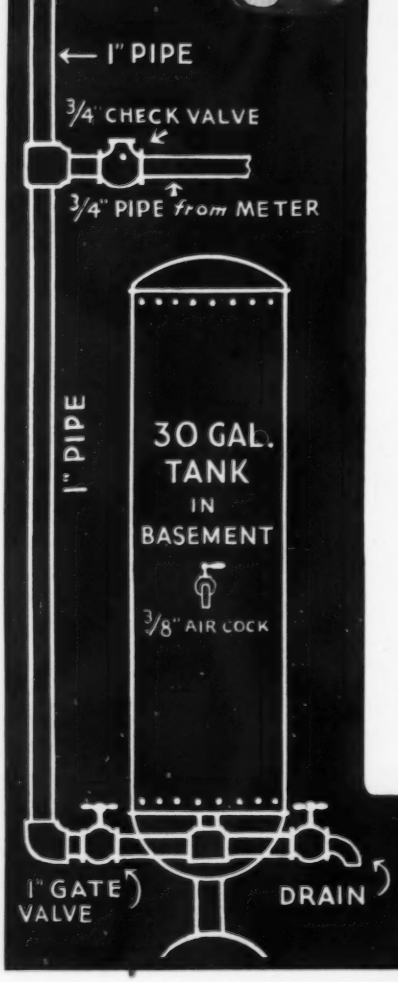
WOLVERINE BRASS WORKS

GRAND RAPIDS WB MICHIGAN

We Sell the Retail Plumbing Trade Exclusively



The Watrous HOOK-UP will sell Modernization jobs!



EVERY woman is ambitious to have modern plumbing in her home. A new water closet tank does not satisfy this ambition. She can be sold modernization much easier when you tell her that the Watrous Hook-Up will enable you to install a Watrous flush valve—the valve that she knows is used in all truly modern homes and buildings.

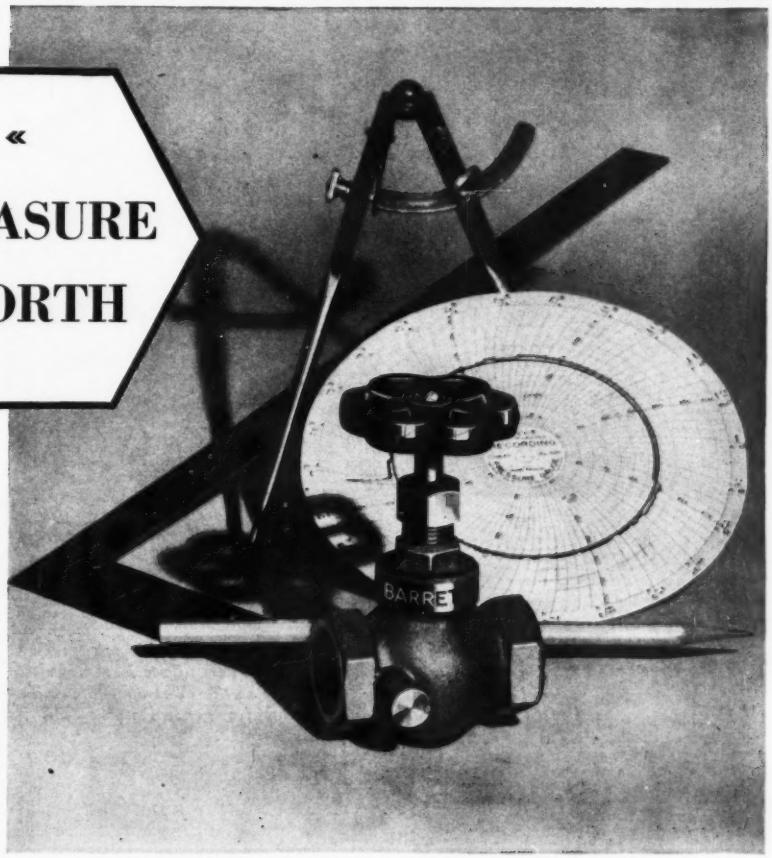
Heretofore flush valves were not used where the water service from street main was smaller than 1 inch. The Watrous hook-up and flush valve, therefore, opens up a tremendous market in old buildings for you.

Be the leader and sell these jobs before someone beats you to them. Write for full information and be properly posted on a system and valve that has stood the test.

IMPERIAL BRASS MFG. COMPANY
1231 West Harrison Street, Chicago, Illinois

Watrous

» MADE « TO *YOUR* MEASURE OF SOLID WORTH



YOU and many thousands of other plumbing contractors are in reality manufacturers of rough brass goods from the viewpoint of this organization. The ideal you have for your own business, the standards you lay down for every man you employ, every piece of pipe and fitting you use, your unwillingness to even compromise with the imperfect, has set the standard of manufacture for every article in the entire Barrett Line of Rough Brass Goods. That's how you are really a manufacturer of rough brass goods.

Your idea of quality is either in the rough brass goods you use, or it is not! There is no compromise with standards. Were you to witness the manufacturing of Barrett Rough Brass Goods, you would never be out of sight of the continuous process of rigid testing and inspection that every piece of rough brass goods meets. Nor is there any end to the chain of research and invention that goes to make the product that *you* use meet *your* measure of *solid worth.*

Naturally, then, Barrett Rough Brass Goods on the job saves your journeyman's time and temper, eliminates misfits and widens your margin of profit. In forty years the respect of the most exacting plumbing contractors has been won and this achievement is your assurance of *solid worth* in every piece of Barrett Plumbers' Rough Brass Goods you buy. Ask your jobber's salesman for a sample of the Barrett Line. Notice how closely it lines up to what you think every piece of rough brass goods should do. No wonder . . . your measure made it!

THE CLEVELAND BRASS MFG. CO.
4606-4700 Hamilton Ave., Cleveland, O.

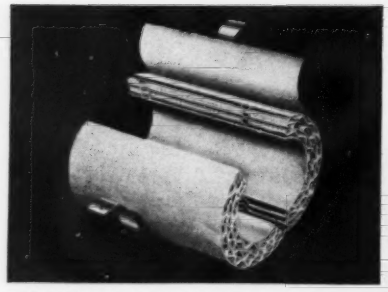
Compression Stops
Compression Stops & Wastes
Ground Key Line
Waterworks Brass Goods

BARRETT

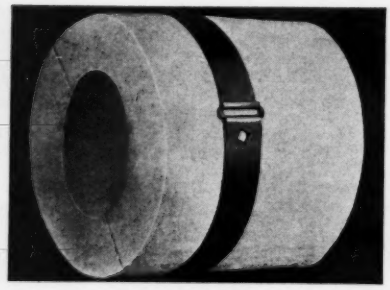
PLUMBERS' *Rough* BRASS *Goods*

"THE STANDARD OF COMPARISON"

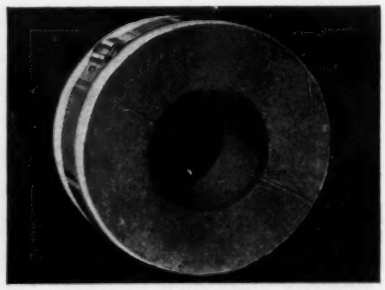
For *superior* Service . . *greater* Fuel Savings . . for *larger* Profits . .



IMPROVED ASBESTOCEL *for temperatures up to 300° F. Cross corrugated construction increases insulation effectiveness. Always uniform in size, it saves labor, time and assures a neat job in home basements. Nationally known. Nationally advertised.*



J-M 85% MAGNESIA *for temperatures up to 600° F. Years of use have definitely established it as the most efficient insulating material for general use within its temperature range.*



J-M WOOL FELT PIPE INSULATION *for insulating hot or cold water pipes where a low-priced material is required. Furnished in 3-foot sections in thicknesses of ½ inch, ¾ inch and 1 inch.*

You can bank on these time-tested and high-quality Insulations . . .

THERE is no job of low pressure insulation—whether for a domestic heating system or for the complicated steam and water lines of a modern skyscraper—that cannot be taken care of *efficiently* and *economically* by these Johns-Manville Insulating Materials.

For every condition of temperature and service—both of which vary widely on different jobs—there is a J-M material which guarantees the maximum insulating efficiency.

Over 70 years of scientific research and development are back of every Insulating Material that bears the Johns-Manville name. The cumulative experience that this specialized service has given us is available to you, without obligation, through the coöperation of our Insulation Engineers.

J-M ANTI-SWEAT PIPE INSULATION *is built up of layers of insulation and waterproofing felts, used to insulate cold water pipes and to prevent condensation.*

There is a Johns-Manville Distributor near you—a telephone call will bring prompt service. Either get in touch with him or write us direct. Address Johns-Manville, 292 Madison Ave., New York City.

Johns-Manville

Low Pressure Insulations

1928 1929 1930 1931

Speaking of "sales curves"

...and everybody is...

look at

MAYFLOWER!

Sold thru retail merchants only

Period-styled cabinets

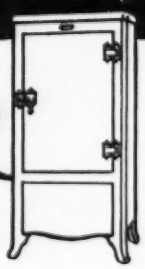
Pre-sold by national advertising

A complete refrigeration line

Refrigeration since 1920

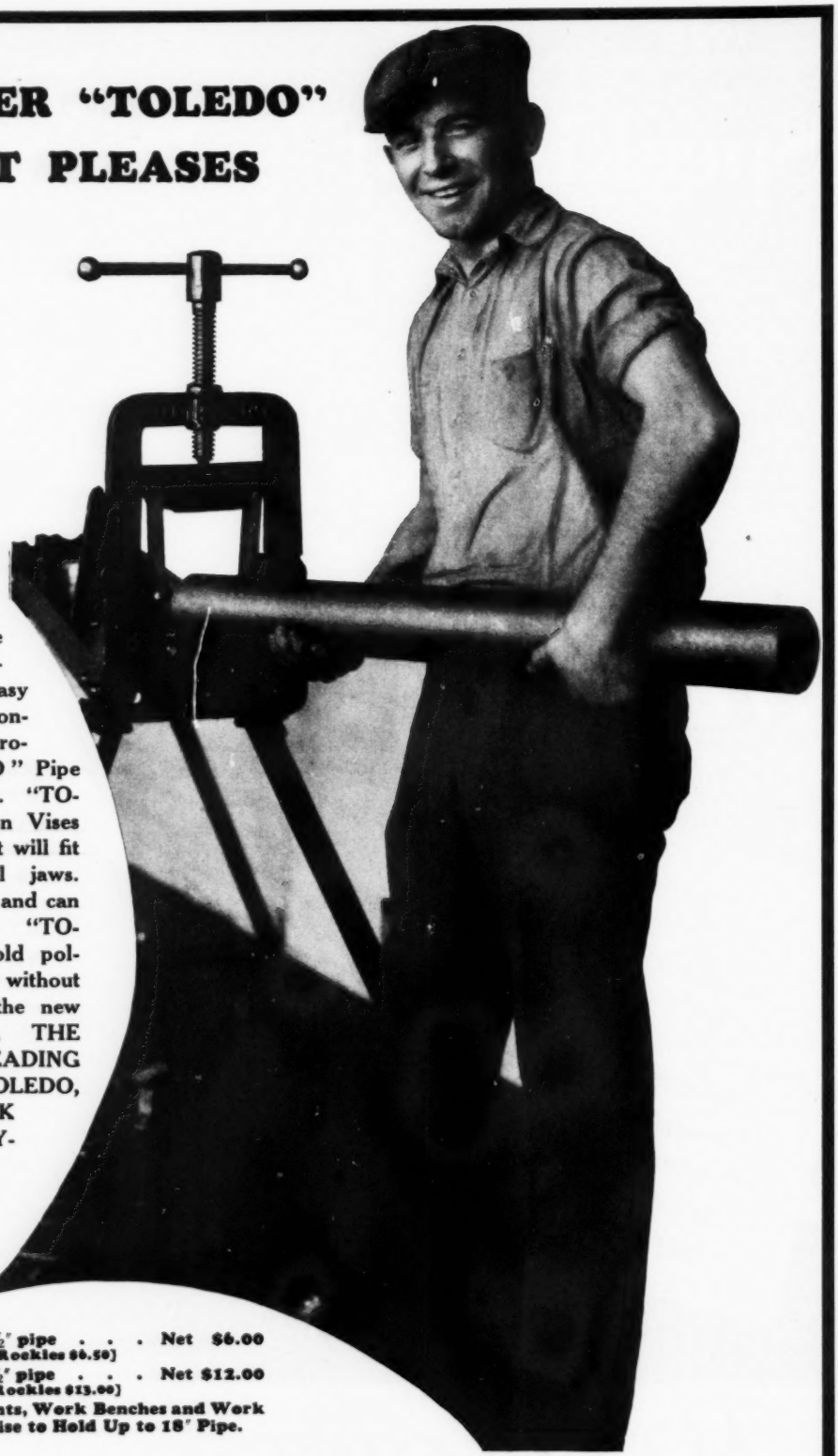
HERE is a selling record that challenges the interest of every retail merchant who is considering the tremendous possibilities in electric refrigeration today. Twelve years of sound profitable Mayflower progress, *with an amazing increase in sales during the past four years*, is proof positive that the Mayflower product and retail merchandising plans are RIGHT. More than 80 per cent. of the market for electric refrigeration yet untouched. *Someone* in your territory will make money representing Mayflower electric refrigeration. That someone can be *you*. Get the facts. Trupar Manufacturing Company, Dayton, Ohio.

MAYFLOWER
ELECTRIC REFRIGERATION



Send us your name and address, and we will mail you our booklet outlining the complete Mayflower retail merchandising plan.

ANOTHER "TOLEDO" THAT PLEASES



Good workmen deserve good tools. "TOLEDOS" are famous for easy working qualities, economy and satisfaction produced. "TOLEDO" Pipe Vises are no exception. "TOLEDO" Malleable Iron Vises will hold anything that will fit inside their powerful jaws. Jaws are made of steel and can be recut at low cost. "TOLEDO" Vises will hold polished or nickel pipe without marring. Write for the new "TOLEDO" catalog. THE TOLEDO PIPE THREADING MACHINE CO., TOLEDO, OHIO, NEW YORK OFFICE, 72 LAFAYETTE STREET.

No. 1 Vise, cap. 1/8" to 2 1/2" pipe . . . Net $6.00
(West of Rockies $6.50)

No. 2 Vise, cap. 1/8" to 4 1/2" pipe . . . Net $12.00
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Also "Toledo" Vise Mounts, Work Benches and Work Benches with Chain Vise to Hold Up to 18" Pipe.

"TOLEDO"
TRADE-MARK REGISTERED
SATISFACTION GUARANTEED

Our Industry

"Spend for the Home in 1932."

That is a sensible suggestion which will appeal to you, your wife and every member of the family.

You know what an argument would follow if you suggested spending for some of the luxuries that seemed so important two or three years ago. But the "Spend for the Home" idea takes hold of everyone.

"Spend for the Home in 1932."

Since the suggestion arouses you, you can feel quite sure that your customers feel the same way. When both buyer and seller are influenced by the same feeling, an order is easier to get, because the purchase is harder to resist.

DOMESTIC ENGINEERING has developed a promotional program built on this logical basis. We have already offered the plan to some leading business papers in the building and home industries. Its reception has been enthusiastic and unanimous.

It offers the first opportunity for the great building and home industries to unite under a common sales banner. Centering on the home, everyone in the plumbing and heating field can use his own efforts and at the same time benefit from the parallel sales work of the lumberman, the building material dealer, the furniture store and others.

The following pages will tell you of the specialized sales helps which DOMESTIC ENGINEERING is preparing for the plumbing and heating dealer. It opens the way for better business for you by enlisting in the campaign to have all of us

"Spend for the Home in 1932."

"Spend for

IN 1932, the building industry is called upon to face the tremendous pressure of inter-industry competition with a united front. In the preparations for merchandising supremacy in 1932 among the industries, some leading business papers of the building industry have adopted a slogan: "Spend for the Home in 1932!" The plan is spreading.

At a meeting of a group of men, representing various building journals, held in Chicago on December 29, this slogan was accepted as one behind which the entire industry might unite; each unit in the industry working on its own method of bringing the idea—"Spend for the Home in 1932!"—to the public.

First conceived in the offices of DOMESTIC ENGINEERING, preparations to interest plumbing and heating buyers have gone on, and material for the use of our readers will be released in issues to come. The poster, bearing the slogan under which the whole building and home furnishing industries will be called upon to wage their merchandising battles in 1932, appears on our front cover, and further details concerning it will be found on the inside back cover.

But, as the staff of DOMESTIC ENGINEERING discussed the possibilities of this slogan for the plumbing and heating industry, the idea was voiced: "Why not give it to the whole building field—and to the other industries interested in the home?" The result was the meeting of members of the building industry's business papers, to form a nucleus—and at that meeting unqualified acceptance, and willingness to swing back of the movement, were expressed.

Among all of the industries interested in the American home, there are powerful organizations which, in their respective fields, can make this idea so prominent during 1932 that a far greater portion of American earnings will go into the home than has ever before been the case.

The Time Is Ripe

Every movement of this kind, if it is to succeed, must be based upon an idea that will meet with sympathetic public response. Good organization and aggressiveness will give any movement some success; but good organization and aggressiveness, put back of a movement that actually meshes with the state of mind of the general public, will be irresistible. The "Own Your Home" movement of some years back was a splendid example.

It may be stated without qualification that the public is today ready to catch at the idea of "spending for the home." Perhaps no more striking way of stating this fact can be found than the remark, made by a man whose experience in advertising and promotional work make it possible for him to speak with authority: "The American people have come home."

That is true. There is hardly a man or woman in America who has not been affected by the conditions through which we have been passing. Reduced earnings, whether from salaries or investments, uncertainty as to the future course of things, and a realization that there was something fundamentally unsound in the frenzied spending of the years just preceding the 1929 debacle, have given men and women a more sober viewpoint.

Where, two years ago, every type of public amusement place was crowded, today there is a sharp reduction in the number of people who are seeking their pleasures in roadhouses, cabarets, even in the theaters. The younger people, whose pace was the marvel of the times a year or two ago, have had to slow down. Young men do not have the money to fling about as they did then.

And besides these pecuniary considerations, there is a profound psychological change going on in the American mind. We have reached the point where the frenzied reaction to the war period has spent itself. The general relaxation of those times, the loss of respect for authority, the reckless and irresponsible thinking that was typical of the times, have all lost momentum under the pressure of economic difficulties.

As a result, hundreds of thousands of families have been thrown back on their homes for their entertainment. And what was "good enough" when people didn't spend a great deal of time in the home is now seen as second-rate, and people who have begun to center their social lives about their homes are also beginning to realize a need for making those homes more beautiful and more convenient.

Thus, psychologically, and under economic pressure,

the Home in 1932"

DOMESTIC ENGINEERING announces a new campaign to unite the building and home industries in their first united sales effort. Future issues will carry sales helps for plumbing and heating contractors

the American public is ready to hearken to the message: "Spend for the Home in 1932." Perhaps in the years when it seemed easy to make money in the market, the idea that investment in the home paid good dividends had a difficult time to secure a hearing. But time has taught the American people a lesson—and no doubt the most powerful of all of the arguments that may be brought to bear in putting over the idea of spending for the home will be just that one—money invested in the home does pay big dividends in comfort, convenience, added value and added prestige.

Aside from all these things, there have been a number of recent developments which show that we are steadily moving in the direction of the greatest interest in the home that, perhaps, the nation has ever had. The outstanding example is, of course, President Hoover's Conference on Home Ownership. Committees at work, with memberships in many sections of the country, form local centers of interest.

The very pressure of real estate on the market, much of it at low prices, and the activities of the real estate people, will ultimately result in the sale of much of this real estate.

At a recent meeting in Chicago, the building material dealers spent a number of days studying possible lines of approach to the problem, of increasing the sales of building products.

But, above all, this campaign is timely because it aims at stimulating people in a direction *in which they want to go*. The man without a home wants one, the man with a home wants to improve it, the business man who is interested in building materials for new homes or for improving old ones, the real estate man, the home furnishing man, banks and building and loan associations—all are united in the one hope that people who can will commence to spend for the home; and, of course, as that process starts it will form a major part of the movement towards better times, making more jobs, making the spending of more money on the home possible.

The "Spend for the Home in 1932" movement will unquestionably be a powerful factor in the revival of business.

With this article we reproduce the slogan banner, especially designed for this campaign. To units in the plumbing and heating industry, already familiar with the two slogan banners we have produced on remodeling, this new poster will appeal immediately. Further details concerning how it may be secured will be found on the inside back cover of this issue.

That slogan banner will be offered to every industry in the United States, directly or indirectly interested in the American home, so that within a few weeks it may be seen in the windows of business establishments all over the country.

To the plumbing and heating industry goes the honor of having produced the campaign idea. DOMESTIC ENGINEERING feels that the industry will lead all others in aggressiveness in promoting the idea and while the task of giving a nationwide impetus to the slogan, "Spend for the Home in 1932" will be a tremendous one, we undertake it cheerfully in the belief that it is going to mean a definite and profitable increase in business for the men this publication serves.

The plan, as matured by DOMESTIC ENGINEERING, involves first the informing of every unit in the plumbing and heating field. For these there will be the slogan poster. In addition, there will be a series of ten newspaper advertisements, offered in mat form and without charge, to back up the program. Then, for the use of members of the industry—and they will also be sent to a selected list of newspapers—there will be a group of publicity stories which will help to mold public opinion on this subject. These will be prepared by the staff of DOMESTIC ENGINEERING. There will be interviews with prominent men in the building industry and statements from those who are in a position to speak with authority on the movement.

The second phase of the plan will take in the task of informing the entire building and home furnishing industries of the movement—a big job in itself, but one which we feel ought to be done. It is a time, not for narrowly selfish plans and programs, but for something upon which opinion throughout the fields interested in the home may be unified and sent into effective action.

In future issues further details will be given of the material to be produced to assist the building industry in taking its rightful place in the van of the industries, to lead America not only out of the depression, but into a new philosophy of living in which the home will once more occupy the dominant place it deserves in our national life.

Sub-Drainage Public

By R. M. STARBUCK

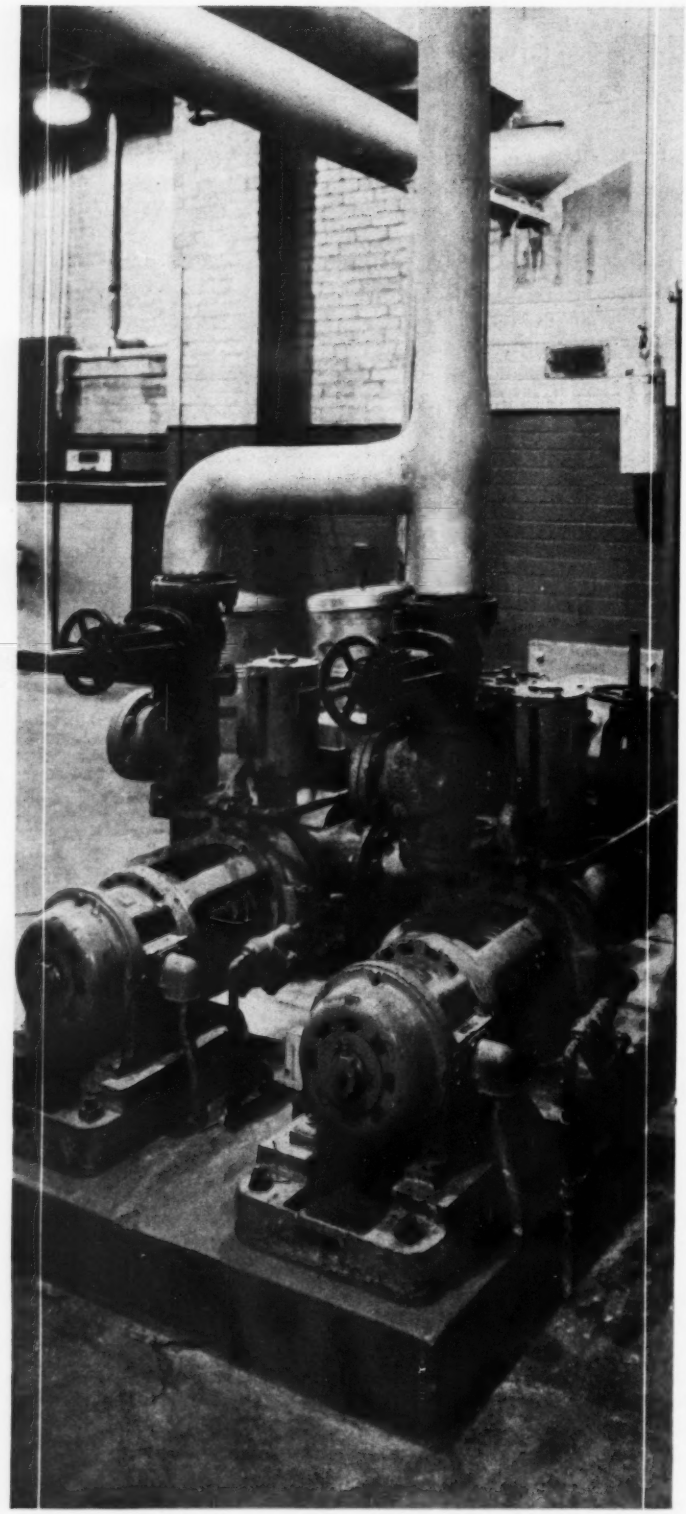


Fig. 1—This shows the installation of sump pumps which were figured as capable of discharging 100 gallons of water per minute.. They are direct connected and have been built to operate against a head of 30 ft. Refer to Fig. 3 for a diagram of the piping connections.. The number of lines indicates very clearly the amount of work the pumps must do

WHY do the foundations for a great many of our important buildings have to go down below sewer level?

This question is important to plumbing operations, for the carrying of foundations far down below the surface of the ground generally means that there will be one or more basement and sub-basement floors whose plumbing equipment must be provided for under difficult conditions.

There are many reasons why it is increasingly necessary to provide plumbing under such conditions.

In the first place, in order to support the tremendous weights of mammoth buildings, considerable depths are often necessary in order to reach a proper support for such weights.

Often in our large cities land values are so high that it becomes a matter of great business economy and profit to send the building as far down into the ground as possible, while sending it upward also, to great heights.

In some instances, in fact in many instances basement ceilings must be so high that the floor of the basement is at a much lower level than the public sewer.

Often conditions that are purely local or conditions entering into the construction or character of the building, will make necessary the handling of low level drainage.

This low level drainage is of two kinds, foul sewage and clean waste.

System for a Building

In Figs. 1 and 2 we show photographs of apparatus used in the handling of both kinds of sewage in a large public building.

Fig. 1 shows an installation of sump pumps capable of discharging 100 gallons of water per minute. These pumps are direct-connected, and have been built to pump against a head of 30 ft.

These sump pumps operate automatically by means of float-controlled switches. By an adjustment of the float the second pump will cut in automatically in case the first float fails to operate.

That this basement sump has plenty of work to do, may be seen by a study of Fig. 3, which shows an elevation of the various connections into the sump.

There is a second sump, for the elevators, located at some distance from the principal sump. The one set of pumps discharge both sumps. Fig. 3 shows the arrangement of the suction pipes to the two sumps. Each of them is 4-in., connected together, but valved so that either suction may operate separately.

An area drain discharges to the sump through a 3-in. line carried above the basement floor.

Another drainage line discharges into the sump from a trench which serves the boilers, this being 4-in. also.

At the left of the drawing will be seen the 4-in. connections for the condensing tank which serves the boilers.

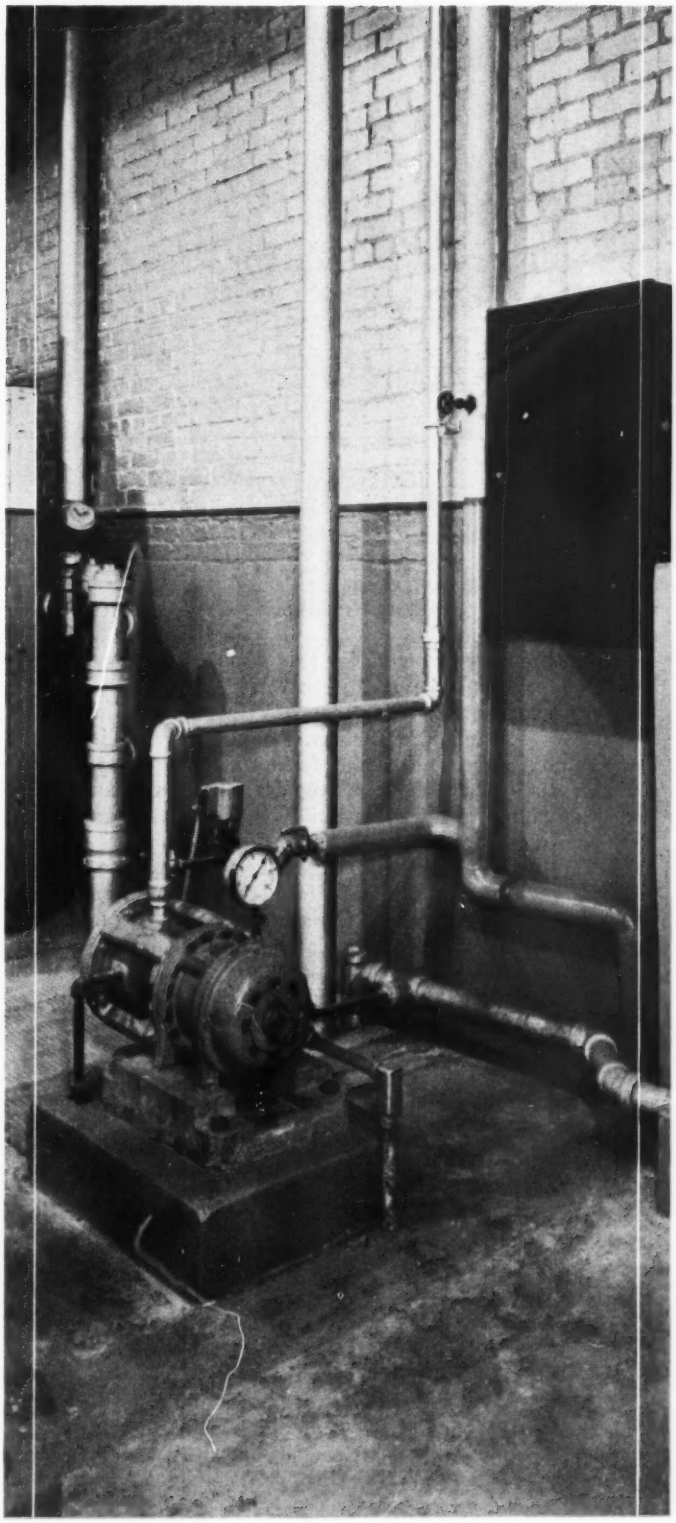


Fig. 2—Here is the compressor which operates the sewage ejector. It is located just to the right of the sump pumps shown in Fig. 1 and if the two views are considered one picture, their correct location to each other may be seen. The piping for the compressor and the sewage ejector is sketched in Fig. 4

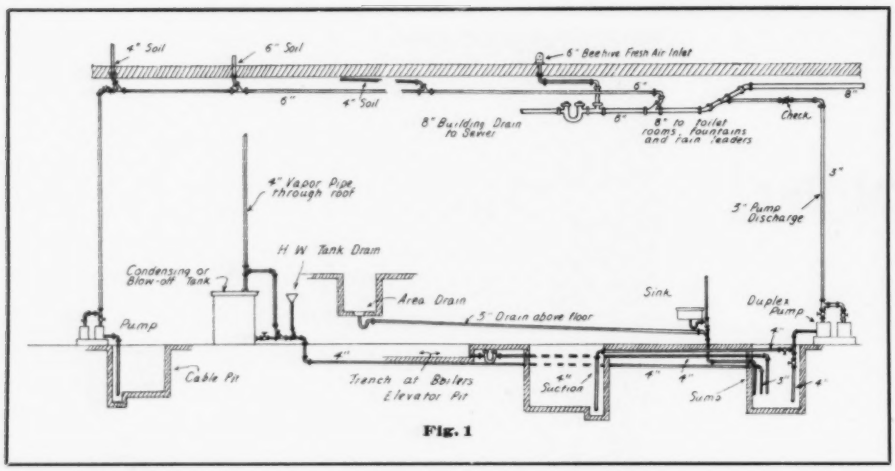


Fig. 1

Fig. 3—The number of connections and lines running into the sump gives an idea as to the amount of work required of the pumps shown. Note that the area drain also discharges into the sump. This is carried through the 3-in. line above the floor

Into the drainage line from the condensing tank, the drainage for the hot water storage tank is also connected.

At the extreme left there is a cable pit, but this is so great a distance from the main sump that its drainage is handled in a different manner than other basement drainage.

A separate pump is used for this pit, the drainage being pumped into the end of one of the principal horizontal soil lines, with a check valve to prevent backing of sewage into the pit. A check valve is likewise used on the discharge from the main sump.

Fig. 3 also shows the building drain. This is an 8-in. line, showing the main building trap with 6-in. fresh air inlet.

The equipment shown in Fig. 2 serves the automatic sewage ejector, which handles the foul sewage produced in the basement. This includes a sizeable toilet room and shower room and floor drains and sinks in the battery room. Because of the acids in the battery room waste pipe and fittings were selected accordingly, being acid-proof.

The ejector which is operated by an air compressor, has a capacity of 30 gallons.

It will be noted that in this particular system, the connection from the compressor to the sewage ejector also acts as a vent for the ejector. Because of its double duty it is best to run the pipe separately through the roof. This practice is demanded in some cities and in many more cities the vent from the ejector may be connected into the upper level vent system.

When the type of compressor is like the one in Fig. 4, if the pipe is not carried through the roof, it is best to connect into the regular system well up on the main vent line, probably as high up as the second floor.

It may be objected to that clear water waste from the transformer vault sump is discharged into the sewage ejector, which is supposed to handle only foul sewage. The answer is that this particular sump was located so far distant from the main basement sump that it would have been a difficult and expensive matter to connect to the latter, although that would be the proper course to follow. It will be noted that there is a check valve on the discharge line from the transformer vault sump, and also another check on the main inlet to the sewage ejector. Therefore the sump is mechanically protected.

The four illustrations serve to give a very clear idea of the complexity of the problem of drainage in low level basements in almost all large buildings.

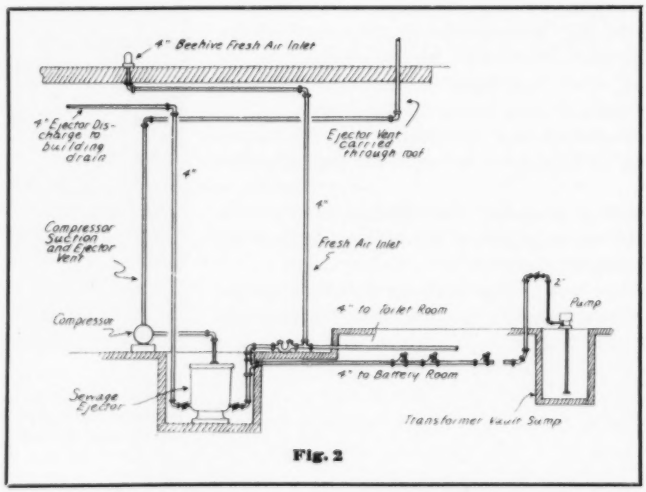


Fig. 2

Fig. 4—This drawing shows the piping and connections for the air compressor, the sewage ejector and the transformer vault sump pump. A photograph of this compressor and some of the piping is shown in Fig. 2

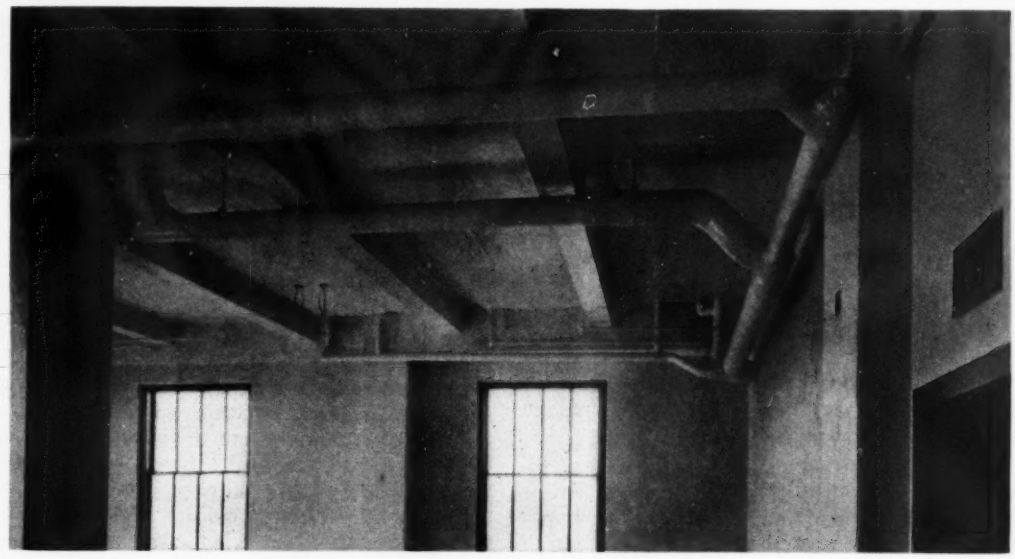


Fig. 1—These exposed lines suspended from the reinforced concrete ceiling serve the toilet room on the floor above. They have been carefully and heavily insulated to prevent condensate from forming on them because telephone instrument boards and other delicate equipment is to be located below them

How to prevent the formation of

By A. J. PARKS

Condensation on Pipes

THESE are the days when basements and cellars are being put in apple pie order and turned into attractive dens, play rooms, club rooms and the like. Have you ever given due consideration to the safeguarding of these comfortable, well-appointed rooms against damage from condensation dripping from overhead pipes? No doubt there is a bit of extra business to be found in giving service of this kind to your customers.

Probably many of us have not thought of insulating lines of soil pipe which run overhead through many of these rooms. It can be done and is done on drainage lines just as practically as on cold water lines.

Recently we saw such safeguarding as we speak of carried out in quite a large way in a finely equipped recently completed telephone building. In this building housing the equipment of a large telephone system, every possible precaution is taken against the breakdown of that system. The insulation of all pipes having to do with the mechanical equipment of the building is required wherever leakage or dripping of condensation might cause damage. This of course is one of the measures taken to be prevent breakdown or failure.

We can explain the idea and the necessity of it from Figs. 1 and 2.

Both of these views are taken in a large room which later on will be equipped with switch boards and other delicate apparatus. On the floor above, there is a large kitchen connected with a cafeteria, also a toilet room with a large number of fixtures.

As will be seen from the two pictures, all the exposed drainage lines which serve the kitchen and toilet room are heavily insulated. The most of this piping is not over 4 in., but the heavy insulation gives the appearance of much larger pipe.

We started out by talking about the insulating of drainage lines in basements and cellars of dwellings, and have drifted onto the insulating of drainage pipes in a large public utilities building. The principle involved is the same in the two cases, and perhaps the importance of the subject is rightly emphasized by considering its bearing on this larger undertaking.

Let us see what condensation is and how it is caused. Briefly stated, condensation is the passage of a vapor into the liquid state. Warm vapors coming in contact with cold surfaces, results in the deposit or condensation on the cold surface, of the moisture contained in the vapor.

The action of condensation underlies the operation of distilling apparatus, the vapor of the liquid that is boiled being condensed into a liquid.

The most common example of condensation in

connection with plumbing is the "sweating" of cold water pipes during the summer season when humidity is high. This is the thing that requires safeguarding in cellars or basements that are used as living quarters. Extensive damage can be done unless precautions are taken.

Sometimes small sheet metal gutters are hung from cold water pipes to catch the condensation and carry it off instead of allowing it to drip.

While cold water supply pipes are extremely susceptible to the collection of condensation, pipes which are carrying hot water are not thus affected. However, when the family is away in the summer time, or when the water is not heated for a considerable time, the hot water pipes easily become cold water pipes. For that reason, it would be advisable to insulate both hot and cold pipes in residences where there is danger of damage from condensation.

On the other hand, it would be unnecessary to insulate the hot water pipes in such an installation as that of the telephone building, for there the supply of hot water is constant, and the return circulating system keeps the pipes at least warm all the time.

Under some conditions the drainage lines might not be greatly affected by condensation. For instance, the ordinary use of the plumbing fixtures might send enough hot water through the pipe to warm it sufficiently to prevent the possibility of trouble from condensation. Here again however comes up the situation that may arise when the inmates are absent. Therefore it would appear to be the part of wisdom to insulate the drainage pipes and the vent pipes as well, wherever they run horizontally through basement rooms where floor coverings, upholstery, etc., might be damaged and even ruined by the dripping onto them of condensation.

When pipes are properly insulated they are not simply covered over in a careless sort of way. To show what a painstaking and thorough job real pipe insulating is, we think it will be of value to quote the specifications governing the insulation of drainage and cold water supply lines in the telephone building we have spoken of. These specifications are so thorough going that they may be taken as an example of high grade work in this line.

The specifications for the insulating of these pipes were as follows:—"Apply single ¾-in. thickness of anti-sweat felt covering with waterproof liners and seams staggered, on the following: 1. All cold water branches to toilets. 2. All soil and waste lines exposed at third floor ceiling below fourth floor women's toilet. 3. Drinking fountain waste line from the top fountain to a point where the waste turns down into boiler room sink. 4. All exposed branches to toilets and exposed piping at kitchen ceiling.

"Cover all fittings, including water meter on lines where anti-sweat covering has been applied, with wrapped hair felt and magnesia cement trowelled smooth, to finish flush with adjacent covering. . . . All pipe covering which will be exposed on basement ceiling, kitchen ceiling or in pipe shafts or elsewhere shall be further covered with rosin-sized paper and, 8 oz. canvas neatly sewed on."

As shown in our two illustrations, the insulating of these drainage lines with their fittings is capable of being so well done that a fine appearance is produced. And of course, as these basement rooms have become a part of the home in which the family takes pride, nothing but the neatest and best kind of a pipe insulating job should be done.

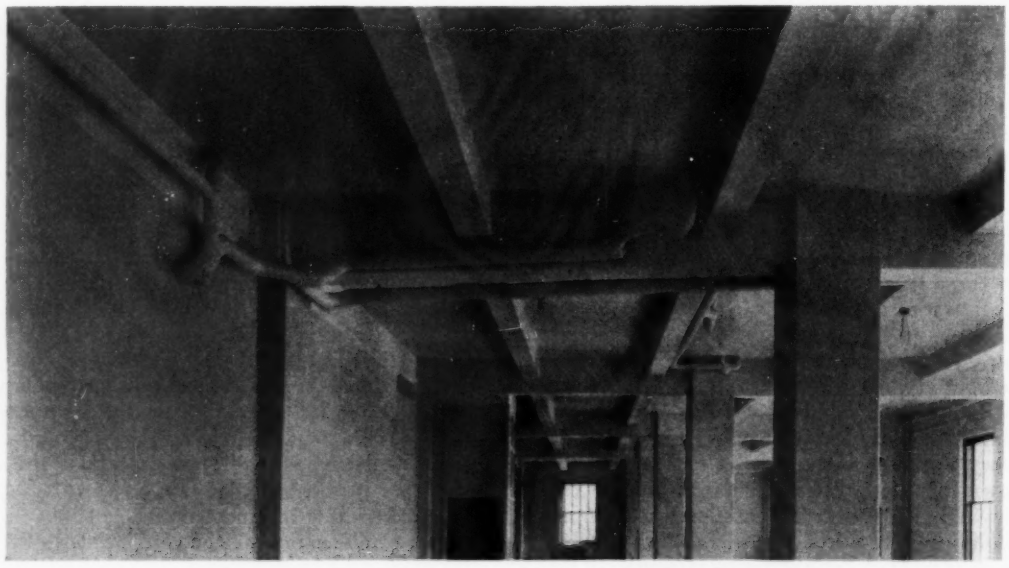
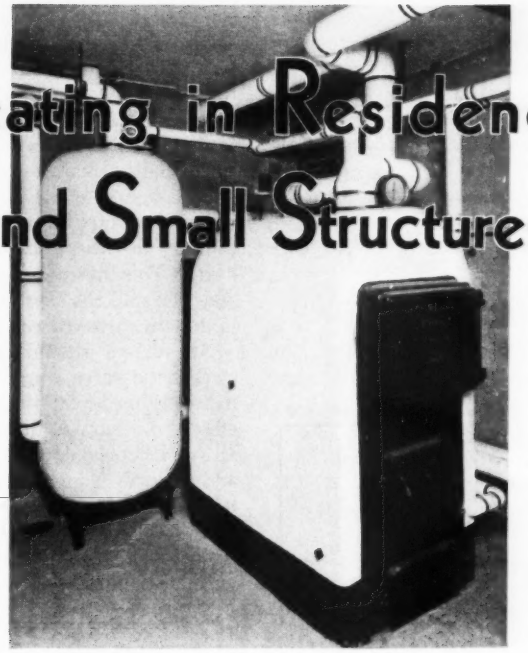


Fig. 2—The exposed drainage lines for the kitchen on the floor above are shown here. Most of this piping is not over 4 in. in size but the heavy insulation gives the appearance of much larger pipe. The widespread desire for attractive basements free from sweating pipes opens up a field for this insulation work

Heating in Residences and Small Structures



Steam Heating Systems now are considered in this which is the seventh of a new series of articles by H. L. Alt. Previous articles have covered hot water

IN THE heating of smaller size structures hot water's greatest rival is the one-pipe steam system; this is due to this type of steam heating being both simple and cheap to install; the radiators are smaller than those required for hot water, there is only one pipe connection to a radiator and it is very positive. By that is meant that sluggish circulation is very rare. Either a radiator heats or it doesn't and there isn't much half way about it either. Steam systems have more sources of trouble than hot water systems but — at the same time— they seem to be more easily rectified. It is almost impossible to put in any number of hot water jobs without striking a radiator now and then which refuses to circulate properly and for no good apparent reason. With steam, a radiator refusing to heat usually may have the difficulty located by inspecting the pipe and clearing the air valve. Moreover there is little difficulty in persuading the steam to penetrate to the farthest radiator on the system and to heat it just as hot as any of the others; as much cannot be said for hot water.

Having discussed hot water heating in detail let us now turn our attention to steam systems. In a steam system the water in the boiler not only is heated but also is boiled so that the vapor given off in the form of steam flows out into the piping system and radiators where it condenses and turns to water

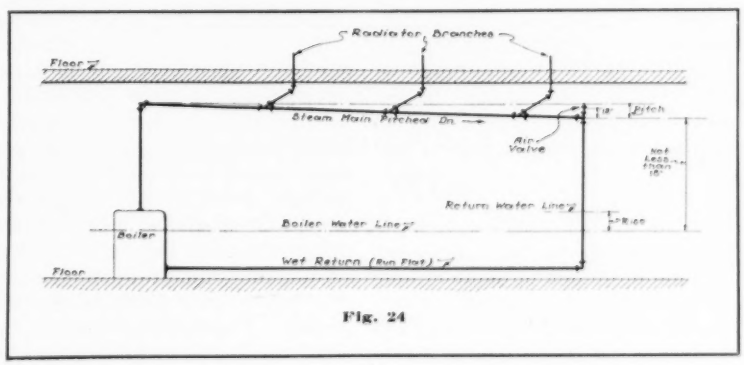


Fig. 24

which flows back to the boiler (for re-evaporation) either by gravity or is pumped back by a return or vacuum pump. In the one-pipe gravity steam system the condensate from the radiators comes back down the same pipe through which the steam is flowing up to the radiator and for this reason the velocity of the steam must be kept down to a reasonable limit so as not to interfere with the returning condensate. In Fig. 24 is shown a simplified diagram of a one-pipe steam system with a wet return which always is to be preferred with such systems.

Calculating Radiators for Steam Systems

In calculating radiators for steam systems the Btu. losses for each room are calculated in exactly the same

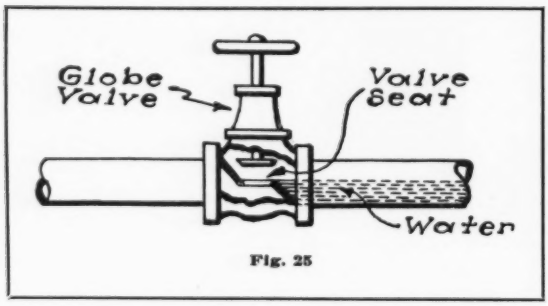


Fig. 25

manner as for hot water but the total Btu. loss is divided by 240 instead of 150 because a steam radiator setting in a room at 70 deg. Fahr. and with one pound of steam pressure will give off approximately 240 Btu. per hour for each sq. ft. of rated surface. In using the 2-20-200 rule no 60 per cent is added and, in using decimal factors, the Btu. transmission of the surface is divided by 240 to obtain the decimal for that surface. Thus, for glass with a loss of 77 Btu. per sq. ft. per hour with 70 deg. Fahr. temperature difference the decimal factor for steam radiation would be

77/240 or 0.32

and for a wall surface with a transmission of 20 Btu. the decimal factor would be

20/240 or 0.083

The radiators are located either under the windows or along the wall as close to the window as possible and have the steam connection at the bottom—never at the top. This is because the condensate forming in the radiator has to pass out through the steam connection in order to get into the pipe and to proceed back to the boiler.

Radiator Valves

The radiator valves on the steam end are usually of the angle globe type with the inlet looking down and if the radiator valve must be placed in a horizontal runout it should be of the gate type as a straight globe type of valve has a seat which forms a dam and prevents the condensate from flowing back through the valve until the water reaches the top of the dam and half fills the pipe. This is illustrated in Fig. 25. On the end of each radiator opposite to that on which the steam valve is located must be placed an air valve to permit the air to be expelled from the radiator as the steam enters through the steam valve as otherwise the air would be compressed in the radiator by the entering steam until the air pressure is sufficient to prevent any more steam flowing into the radiator and the radiator then fails to heat. This often happens when an air valve fails to function and the first thing to examine in a cold radiator is the air valve to see if it is open or not.

Air valves should always be open until the steam strikes the valve when the heat of the steam expands a member inside of the valve and causes the air port to close. As soon as the steam goes off of the system the air valve cools down, the expansion member contracts, and the valve opens and permits air to enter the radiator and to take the place of the disappearing steam. Some air valves are constructed with a check in the air inlet which prevents the return of the air and causes a partial vacuum to be induced in the system when the

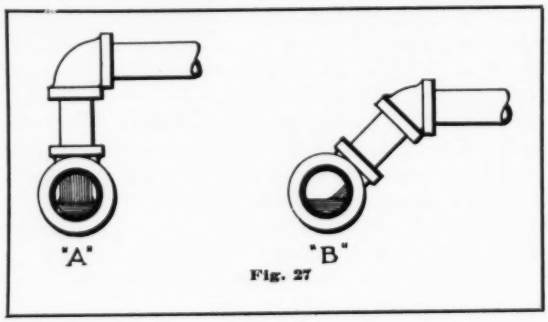


Fig. 27

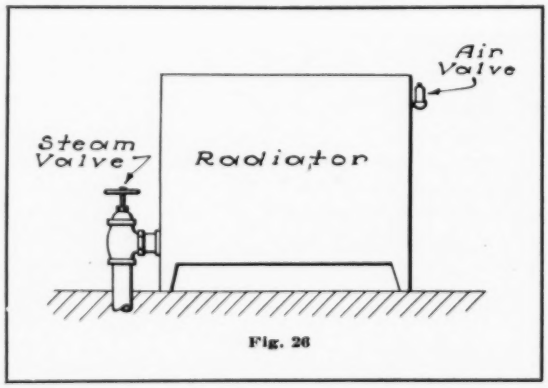


Fig. 26

steam condenses. With this type of valve the radiator will not cool off so quickly when the steam goes down and the steam will go off more slowly as the vacuum in the system becomes higher and higher. Fig. 26 shows a radiator with typical one-pipe steam connections.

Risers

Risers for one-pipe heating systems are simply single pipes for each radiator, or vertical group of radiators, and must have no offsets at less than 45 degrees from the horizontal if possible to avoid it. In running one-pipe risers the fact must never be forgotten that they should be pitched in exactly the same manner as a waste pipe running from the highest radiator, and from every radiator, to the boiler. If the riser, runout and main are arranged so that a cup of water emptied into the radiator valve at any and all radiators will find its way back to the point where the return connects to the boiler it is pretty good evidence that the system is properly pitched. On the other hand, if the water settles into any low point from which it cannot drain out by gravity

there is bound to be trouble unless it be in the wet return which is assumed to be full of water at all times anyway.

Runouts

The customary manner of making runouts from the main to the riser on one-pipe gravity steam systems is to take the branch out of the main at a 45 degree upward slope as shown in "B" of Fig. 27. The taking of the

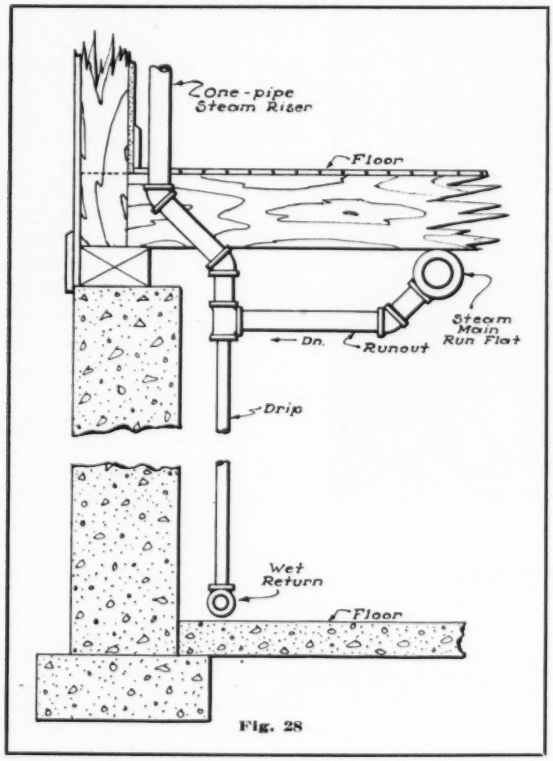


Fig. 28

branches out vertically upward as shown in "A," Fig. 27, is never recommended as the condensate returning down the riser and into the main will have a tendency to cut off the flow of steam through the main as illustrated. With the 45 deg. connection, however, the condensate slides down the side of the main and does not cut across the path of the steam flow. The runouts should pitch back toward the main so that the condensation will have no desire to linger in the horizontal pipe and to give the condensation sufficient motive power to flow back against the onward rushing steam. Ordinarily this pitch is made not less than one-half inch in 10 ft. and, if the runout is long (say over 8 ft.), the size of the runout is increased one pipe size in order to reduce the velocity of the steam and to give the condensate a better chance to flow back.

Flat Mains with Dripped Risers

When headroom is an all-important item and expense of installation is secondary, there is a way to make runouts from the main so as to leave the main run absolutely flat on the ceiling without pitch of any kind. This is accomplished by taking the runouts out of the main at a 45 deg. downward slope and pitching the runout down toward the riser the bottom of which is dripped as illustrated in Fig. 28. All the condensate forming in the main is then carried along with the steam until it comes to a runout; then it drops down into the runout and enters the drip from the riser. This scheme also permits a slight reduction in main size as the main no longer carries any radiator condensate. The runout to the riser also may be slightly reduced as it neither carries radiator condensate or condensate flowing counter to the steam.

One-Pipe Steam Mains and Returns

The most common method of running the steam main in a one-pipe system is to rise up as high as possible at the boiler, then to follow an uninterrupted downward slope to the point where the last radiator connection is taken off and then to drop down under the water line returning to the boiler as a wet return. This already has been illustrated in Fig. 24. It will be noted that an air valve is placed on the steam main at the point where it drops down to form the wet return. This air valve is raised on a ¾-in. pipe about 12 in. above the main to keep it out of the way of water and to prevent the steam in the main shutting the valve prematurely. Some authorities recommend the placing of the air valve as shown in Fig. 29, but raising it up 12 in. seems to be a little surer way. The wet return does not require any pitch and it may be run up hill, down hill, or on the level so long as it stays under the water line. Some difficulty may be experienced in a wet return where there are pockets in the line even though these pockets may be under the water line. This is because air will not be forced out of these high points when the system is filled with water and its presence prevents the free return of the condensate and

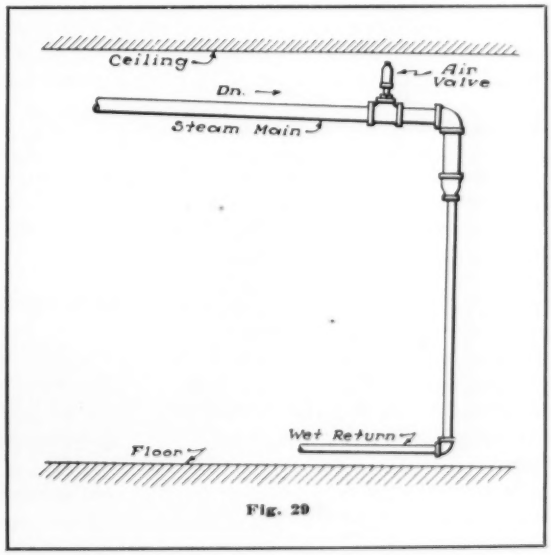


Fig. 29

may stop the flow altogether. Therefore it is best to have a wet return run either level or with a slight pitch down toward the boiler.

Distance of the Steam Main Above the Water Line

There is one item which has caused a great deal of trouble on one-pipe gravity steam systems and that is

(Continued on Page 116)

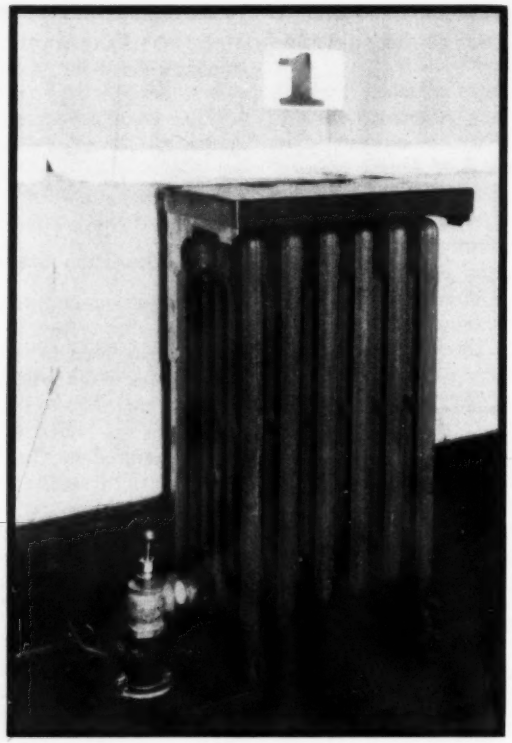


Fig. 1—Tests on the evaporative performance of water pans in radiator shields similar to the one shown were run in the mechanical engineering laboratory

Humidification for Residences

IF AIR containing water vapor, but not saturated, is gradually cooled, a temperature will finally be reached at which it becomes saturated. This temperature is known as the dew point, and further cooling will result in condensation of some of the water vapor. Hence, if the air in the room comes into contact with surfaces having temperatures equal to or less than the dew point, condensation will occur, and moisture or frost will be deposited on the surfaces. With high relative humidities the condensation will occur with relatively high surface temperatures.

The lower curves in Fig. 2 show, for three types of windows, the indoor relative humidity at which condensation will begin to appear on the window panes as the outdoor temperature varies from —20 deg. Fahr. to 69 deg. Fahr. From these curves it may be observed that, with single glass panes, if 40 per cent relative humidity is carried indoors, condensation will appear when the outdoor temperature drops to 35 deg. Fahr. With double glazed windows this does not occur until the outdoor temperature drops to 20 deg. Fahr. and, with storm sash, to zero deg. Fahr. From these curves it is self-evident that if the 40 per cent relative humidity required for optimum comfort is actually to be attained

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The principles underlying humidity requirements and limitations may be summarized as follows:

(1) Optimum comfort is the most tangible criterion for determining the air conditions within a residence.

(2) An "effective temperature" of 65 deg. represents the optimum comfort for the majority of people. Under the conditions in the average residence a dry-bulb temperature of 69.5 deg. Fahr. with relative humidity of 40 per cent is the most practical for the attainment of 65 deg. Fahr. "effective temperature."

(3) Evaporation requirements to maintain relative humidity of 40 per cent in zero weather depend on the amount of air inleakage to the average residence, and vary from practically nothing to 24 gallons of water per 24 hours.

(4) Relative humidity of 40 per cent indoors cannot be maintained in rigorous climates without excessive condensation

By

A. P. KRATZ

in rigorous climates, storm sash must be used to prevent objectionable condensation on the windows. Hence the householder should very definitely understand that there is only one of three courses open, namely, to carry relative humidities lower than those usually recommended, to become reconciled to excessive condensation on the windows, or to install storm sash or the equivalent in double glazed windows.

In many cases condensation may not appear until somewhat lower outdoor temperatures are attained than those shown on the curves, because with poorly fitted windows cold air leaks in around the sash and forms a protecting blanket over the inside surface of the window, thus preventing the actual room air from coming into contact with the surface. For this reason condensation will usually appear on weather-stripped windows before it will on those non-weather-stripped. While this protecting blanket may be an advantage from the standpoint of condensation, the air inleakage adds both to the load on the humidifier and the load on the heating plant, and hence cannot be regarded as an unmixed blessing.

As a rule, the possibility of condensation appearing on the inside surfaces of exposed walls may be disregarded. However, in the case of the frame wall previously cited where the inside surface temperature becomes 48 deg. Fahr. with zero deg. Fahr. outdoors, condensation will appear if the relative humidity indoors becomes 49 per cent. This is approaching the 40 per cent required for optimum comfort and is lower than that sometimes recommended. It also serves to emphasize the fact that in more rigorous climates proper attention should be given to wall construction and heat insulation in considering the problem of relative humidity.

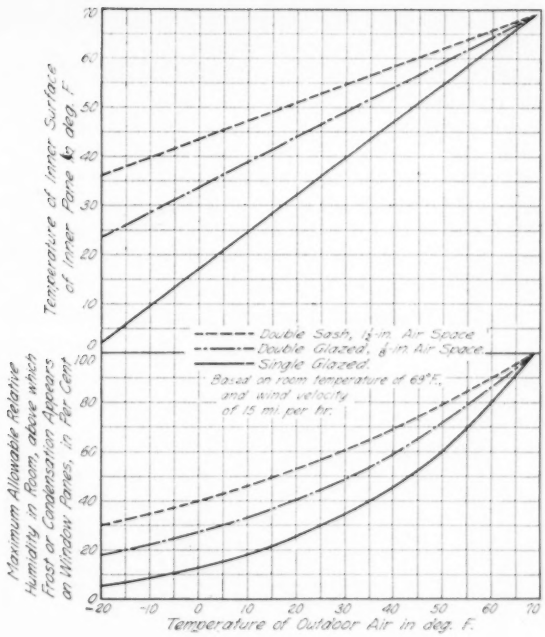
Temperature of Inner Surface of Inner Pane in deg. F.
Double Sash, 1½-in. Air Space
Double Glazed, ¼-in Air Space
Single Glazed
Based on room temperature of 68°F. and wind velocity of 15 mi per hr.
Maximum Allowable Relative Humidity in Room, above which Frost or Condensation Appears on Window Panes, in Per Cent
Temperature of Outdoor Air in deg. F.

Fig. 2—Here are curves for glass surface temperatures and limiting values for relative humidity

From the preceding discussion it may be readily seen that the whole problem of humidity requirements and limitations is closely related to that of good building construction and cannot be separated from it. If these factors are not considered, and the purchase of humidification apparatus is made solely on the basis of expected evaporative performance, the result is liable to end in disappointment.

Performance of Water Pans

Pans in Warm-Air Furnace Plant in Laboratory.—Tests of the evaporative performance of water pans in a warm-air furnace were conducted in the main furnace plant in the Mechanical Engineering Laboratory. The types of pans tested, and the performance curves, are shown in Fig. 5. The furnace was a standard type of cast-iron circular-radiator furnace with a 27-in. firepot. These results were all obtained with the furnace operating with anthracite coal and with comparatively high register air temperatures. It may be observed that the evaporation did not approach the 17.4 gallons of water per 24 hours, derived for a house representative in size for the 27-in. furnace, except for the dome pan and the crescent pan at register air temperatures higher than

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on the windows unless tight fitting storm sash or the equivalent are installed.

(5) The problems of humidity requirements and limitations cannot be separated from considerations of good building construction, and the latter should receive serious attention in the installation of humidifying apparatus.

From the experimental results cited the following conclusions may be drawn:

(1) None of the types of warm air furnace water pans tested proved adequate to evaporate sufficient water to maintain 40 per cent relative humidity in the Research Residence except in only moderately cold weather.

(2) The water pans used in radiator shields tested would not prove adequate to maintain 40 per cent relative humidity in a residence similar to the Research Residence when the outdoor temperature approximates zero deg. Fahr.

those recommended for good practice. Definite limits have been set for these temperatures.

Tests on the crescent pan with the furnace operating with bituminous coal indicated a constant evaporation rate for all register air temperatures from 110 deg. Fahr. to 180 deg. Fahr. This rate was 2.3 gallons per 24 hours when the pan was placed mid-way between the firepot and the casing, as shown in Fig. 5, and 1.2 gallons when placed with the outer edge touching the casing. In either case the pan would prove ineffective for proper humidification.

Pans in Warm-Air Furnace Plant in Research Residence

A considerable number of observations were made on the evaporative performance of three types of water

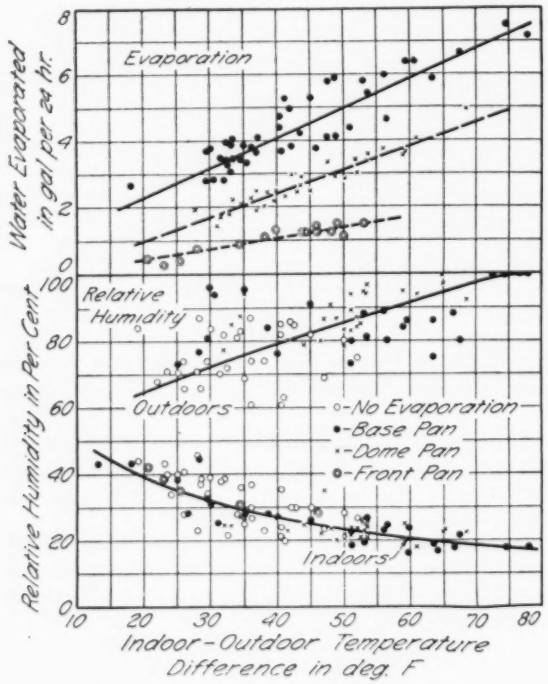
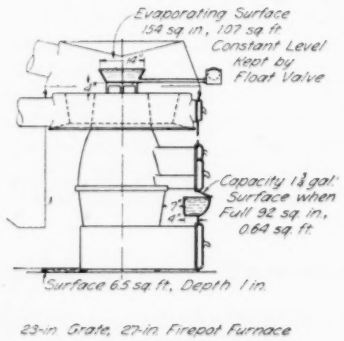


Fig. 3—Above are shown the curves for evaporation and relative humidity obtained with three types of evaporating pans. The locations of these pans are indicated at the right in Fig. 4

pans in the warm-air furnace plant in the Research Residence. This residence has a total heated volume of approximately 16,120 cu. ft. both the furnace plant and the building have been described in a previous bulletin.* The furnace was the same one that was used in the tests shown in the curves of Fig. 5. All tests were made with the furnace operating with anthracite coal, and with the room temperature in the residence maintained at 70 deg. Fahr. by means of a thermostat. The three types of pans tested, and the evaporative performance curves are shown in Figs. 3 and 4, together with a curve showing the relative humidity produced in the house.

From the curves in Fig. 3, it may be noted that the maximum evaporation of 6.8 gallons per 24 hours was obtained with the pan in the base of the casing when the difference in temperature between the air indoors and outdoors was 70 deg. Fahr. This difference corresponds to a zero day, and under these conditions the plant operates with an average register air temperature of approximately 140 deg. Fahr. This register air temperature is somewhat lower than the minimum shown in Fig. 5. The evaporation from all of the pans in the Research Residence could have been increased by reducing the size of the furnace, thus necessitating the use of higher register air temperatures, but this would have been accomplished by an unwarranted sacrifice in heating efficiency and satisfactory operation of the heating plant, and hence is not to be recommended. The evaporative performances of the front pan and the dome pan shown in Fig. 4 were somewhat less than those shown in Fig. 5 at corresponding register air temperatures. This may be explained by the fact that the air circulating capacity for a given register air temperature was somewhat less for the Research Residence plant than that for the main furnace plant. Hence the velocity of the air over the surface of the pan was not as great in the Research Residence plant.

It was not possible, as indicated in Fig. 3, to show positively that one pan produced greater relative humidity in the house than the others. This condition is difficult to explain, but it was possibly due to some moisture storage capacity of the walls, floors, and furniture, although great care was observed to operate the house for a period that was considered sufficient to establish equilibrium before any data were recorded. It is evident, however, that none of the pans evaporated enough water to produce 40 per cent relative humidity in cold weather.


Evaporating Surface 154 sq. in., 1.07 sq. ft.
Constant Level Kept by Float Valve
Capacity 1⅞ gal. Surface when Full 92 sq. in., 0.64 sq. ft.
Surface 6.5 sq. ft., Depth 1 in.
23-in. Grate, 27-in. Firepot Furnace

To produce 40 per cent relative humidity on a zero day, $11.6 \times 1.612 = 18.7$ gallons of water per 24 hours would be required for this building. The evaporation from the base pan was 6.8 gallons per 24 hours, and the resulting relative humidity was 18.5 per cent as shown in Fig. 3. A calculation based on one air change per hour indicates that the relative humidity resulting from the evaporation of 6.8 gallons per 24 hours would be approximately 17 per cent. This agrees fairly well with the 18.5 per cent shown in Fig. 3, and substantiates the assumption that the air inleakage to the Research Residence amounts to approximately one air change per hour on a zero day. If the windows were weather-stripped, and 1/3 of an air change per hour were obtained instead of one air change, the evaporation of 6.9 gallons of water

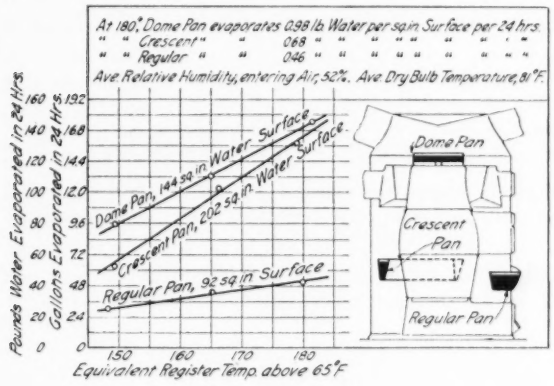
*"Investigation of Warm-Air Furnaces and Heating Systems," Univ. of Ill. Eng. Exp. Sta. Bul. 189, 1929.

per 24 hours would have been adequate to give 40 per cent relative humidity in the rooms.

Pans in Radiator Shields

Tests on the evaporative performance of water pans in radiator shields similar to the one shown in Fig. 1 were run in the Mechanical Engineering Laboratory. The radiator stood on the main laboratory floor and was partly surrounded by a test booth. This booth consisted of a back placed 2½ in. from the radiator, two ends, and a top. It was open on one side and served to protect the radiator against transverse air currents. The laboratory was sufficiently large so that the heat output of the radiator had no appreciable effect on the room temperature, and the evaporation from the pan had no effect on the relative humidity.

Two types of radiators were used: One was a 20-section 38-in. 3-column cast-iron radiator having a rated


At 180° Dome Pan evaporates 0.98 lb Water per sq in Surface per 24 hrs
" " Crescent " " 0.68 " " " " " " " "
" " Regular " " 0.46 " " " " " " " "
Ave Relative Humidity, entering Air, 52%. Ave Dry Bulb Temperature, 81° F.
Pounds Water Evaporated in 24 Hrs.
Gallons Evaporated in 24 Hrs.
Dome Pan, 144 sq in Water Surface
Crescent Pan, 202 sq in Water Surface
Regular Pan, 92 sq in Surface
Dome Pan
Crescent Pan
Regular Pan
Equivalent Register Temp. above 65° F

area of 100 sq. ft., and the other a 6-section 26-in. 3-column cast-iron radiator, having a rated area of 22.5 sq. ft.

In the case of the 38-in. radiator all tests were run with the same shield. The water pan was 1⅜-in. deep and rested on top of the radiator, leaving a clearance of ⅛-in. between the top of the pan and the top of the shield. A row of holes around the top of the pan permitted air to circulate over the surface of the water. Two shields were used on the 26-in. radiator, one having a clearance of ½-in. between the top of the water pan and the shield, and the other a clearance of 1-in. Tests on these pans were made with the top of the shield in place, and also raised at an angle.

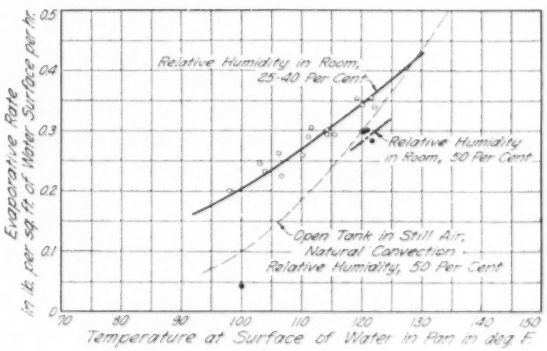
The results of all the tests are shown in Fig. 6. The water temperature appeared to be the controlling factor in determining the evaporative rate. The temperature of the air in the room, the height of the radiator, and the nature of the top, or the clearance between the top of the shield and the top of the pan, appeared to have no direct effect on the rate, but did have a direct effect on the temperature of the water, and hence controlled the rate indirectly. By varying these factors it was possible to obtain a range of water temperatures from 98 deg. Fahr. to 122 deg. Fahr. The range obtained with the 26-in. radiator was from 98 to 115 deg. Fahr., and that with the 38-in. radiator was from 115 to 122 deg. Fahr. The room temperature in the former case varied from 76 to 90 deg. Fahr., and in the latter from 75 to 82 deg. Fahr., with a single reading obtained at 63 deg. Fahr.

The results in Fig. 6 indicate that room relative humidities above 40 per cent had some influence in reducing the evaporative rate. It was possible to draw a single curve to represent all observations for which the relative humidities ranged from 25 to 40 per cent. Three observations for which the relative humidity was 50 per cent, or higher, were not on this curve, and have been represented by a short section of curve shown below the former. On the whole, the results were consistent and the deviations small; hence the curve for relative humidities from 25 to 40 per cent may be considered as representative of the average performance of pans in radiator shields under the conditions existing in a residence.

For the purpose of comparison, a curve for the evaporation from water in an open tank heated by means of a steam coil in the water has been reproduced and is shown in Fig. 6. This tank was about 12 in. deep and had an exposed water surface of 18 in. × 30 in. The surface of the water was maintained 4 in. below the

Fig. 5—At the left, evaporation from pans in a furnace burning anthracite coal

Fig. 6—Below, evaporative rate for water pans in radiator shields


Relative Humidity in Room, 25-40 Per Cent
Relative Humidity in Room, 50 Per Cent
Open Tank in Still Air, Natural Convection - Relative Humidity, 50 Per Cent
Evaporative Rate
Lb. per sq. ft. of Water Surface per hr.
Temperature at Surface of Water in Pan in deg. F.

top of the tank. The movement of air by natural convection over this tank increased as the temperature of the water increased. In the case of the pans in the radiator shields the radiators determined the air movement by convection, and this movement remained approximately constant, independent of the temperature of the water in the pan. Hence the rate of evaporation increased more rapidly with the increase in water temperature in the case of the open tank than in the case of the radiator shields.

It is possible to arrive at some conclusion regarding the adequacy of the pans in the radiator shields by considering conditions in the Research Residence, already discussed. The heat loss from the Residence on a zero day, with a wind velocity of 15 miles per hour, is approximately 119,000 Btu. per hour. To offset this, approximately 500 sq. ft. of installed radiation would be required. If this consisted of 26-in. 5-tube cast-iron radiators, each section having 3.5 sq. ft., it would require 143 sections, or a total length of 357 in., allowing 2.5 in. for each section. Since the width of the pans used

(Continued on Page 121)

Editorials

Another Mistaken Idea Exploded

SEVERAL years ago a book was published by two New Yorkers. They had gone to the trouble of collecting thousands of sayings that are used every day, each one of which they showed to be completely mistaken.

They missed one—"The plumber can't sell." Like so many of the half-truths included in the book mentioned, the one we have just quoted was undoubtedly the result of disappointments which followed attempts to interest every man in the country who called himself a plumber in some selling idea or other.

There has always been a representative group of master plumbers who have been abreast of other retailers in merchandising and selling methods. How that fact was overlooked it is impossible to say. But to say that the plumber is no merchandiser was no doubt, in some cases, a pretty good alibi for a sales force that hadn't been able to lead the cheering in the plumbing industry.

Not long ago, there was a dinner, given by one of the eastern utilities, to its plumber dealers. Of $900,000 in gas appliance sales, these dealers had sold directly $600,000, and the remainder had been sold by the utility on leads furnished by the dealers

Naturally, the utility was in the picture in the merchandising effort, creating demand by its advertising and display. But the point is that, given that backing, the dealers were responsible, directly and indirectly, for almost a million dollars in gas appliance sales.

It might still be possible for those inclined to do so to point to plumbers who do not merchandise. But a volume of business like that stands as irrefutable proof that, given the proper backing, the selected group of master plumbers can and will dispose of merchandise.

The fact has a further significance. Utilities say they went into merchandising because they couldn't get dealers to sell. This looks like they had found some who could sell—and argues that if other utilities in other cities want to get down to brass tacks, they, too, will find plumber dealers who can and will sell. That leaves the utilities very little reason indeed for being in competition with independent dealers. We hope that utility officials will see the logic of the situation.

Another Bit of Leadership

THE function of the business journal is to stand, so to speak, between the industry it serves and the future of that industry. It may not advance so far into the future that it loses touch with the industry—yet it must be far enough in advance that it may see current trends and call them to the attention of its industry when the time is ripe for action.

A few months ago we published one or two tentative editorials on the advisability of looking forward to a renewal of residential construction, and the advisability of beginning to make contacts with those who will have such work to let. We admitted that it was early, but that it seemed wise not to allow such contacts to lapse now.

Back of that recommendation was a feeling that the country is due to show such an interest in homes as it has never shown before. Now, with a little more study of the subject, DOMESTIC ENGINEERING has made definite recommendations. Knowing that an immediate revival in new residence construction is not at hand, it has made its recommendations practical so that they will apply equally to the present home owner, and to those who, a little later, may be thinking of building or buying.

In this issue will be found complete details of this new movement which, we believe, will be of as great importance to the industry as the Bath-a-Day Movement was. We urge individual master plumbers, we urge associations of master plumbers, wholesalers and manufacturers to adopt this movement to direct attention to the home in 1932, and to prove to the American public that the wisest spending it can do this year will be on the home.

The New Year

OLD FATHER TIME has written "Finis" to another page in his Book of Years and, no doubt with a sigh of relief, has turned to a fresh page.

What will be written on that page? No one can foretell; but this much is certain: What is written there will be the result of what those who are in a position of leadership accomplish. Democracy has its leaders, just as has any other form of political society. And business must have its leaders.

For the vast majority of people, life is a process of following the leaders. Men who have gained commanding positions in their business life or their social life, now owe to their communities the gift of leadership. In our business organization, leadership should come from the manufacturer and the wholesaler. It is they, with their broader contacts—and their broader problems—who should furnish to their industry the guiding principles that will bring about a better business era.

If our leaders huddle with the majority, we shall wait that much longer for better times. We believe that the plumbing and heating industry has leaders with the necessary qualifications and we look to 1932 to see better and more aggressive plans coming from them.

Produce the plans, and our industry has the retailers to put them over.

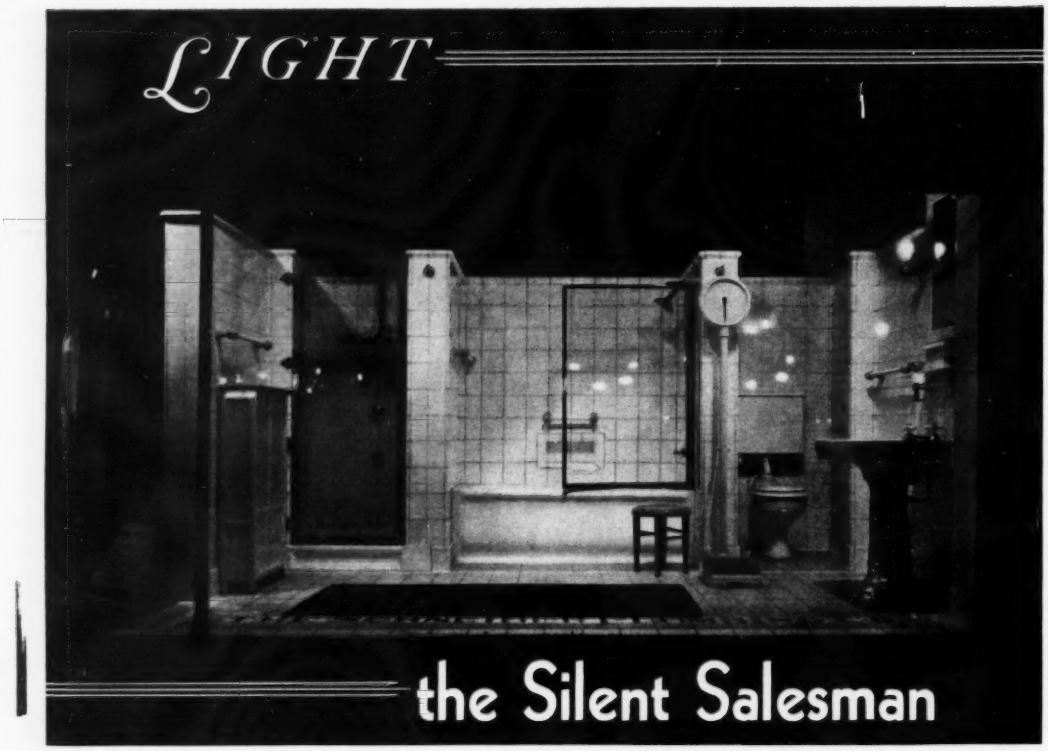
PLUMBING and HEATING MERCHANDISING

Light the Silent Salesman

An authoritative article on window and store lighting problems

"Classified" Display Ads Bring Results

Samples of successful use of merchandise ads in the classified section of a newspaper



Another authoritative article on the selling power of light, written by a lighting expert of Nela Park

LIGHTING effects are more important than is dreamed of by the thousands of people who stand at the other side of the glass. It is light that gives to the finished window atmosphere, spirit, interpretation.

Just as a baby stares at a light, watches a moving ball with intense interest, or reaches for a colored toy, so are all of us influenced unconsciously by the three attention compellers — light, motion, and color.

The primary object of a show window is to gain attention to displayed goods. Your prospective customers, strolling down the street in the evening, will cross to the other side to see certain display windows, and will walk past others without even noting them. For the accomplishment of a challenging display, artificial light, because of its mobility and availability for 24 hours of the day, is a plastic tool in the hands of the display man. Why is the brilliantly lighted window so attractive? Because it is the one which sends its merchandising message out into the street and compels the passerby to stop. The value of your display windows to you can be accurately measured by the number of persons who actually see them. If you want to get the most out of your displays, you must keep your windows well lighted during the entire evening, as well as during the day, because it is during the darkened hours that the leisurely strolling public passes your windows, and if sales are to result from this contact, your windows must attract attention and carry a real merchandising message.

The Stopping Power of Light

As the moth is attracted to a flame, so too are individuals attracted by light—its attention compelling characteristic is recognized by all display men.

Tests to determine the effect of varying degrees of window illumination on the attracting power of display windows were made some time ago in three stores in well lighted downtown districts. It was found here, as the photograph chart points out, that as the intensity was increased the more people stopped to view the display.

The general sales manager of a chain of candy shops writes as follows: "After some years of operating stores, we find that daytime illumination is a most important factor in successful merchandising. Our first thought is plenty of light, properly distributed. We, therefore, keep all window and store lights burning during business hours, as it has been our experience that sales fall off when the lights are off."

Adequate Window Lighting—A Simple Problem

Scientific data and cumbersome formulae are not necessary for the design of good window lighting.

These fundamentals are now built into the equipment itself. Where the reflectors are spaced twelve inches apart and equipped with 100-, 150-, or 200-watt lamps, good lighting will result. Where windows are deeper than ten feet, two rows of lighting units should be provided.

There are two major factors which govern the amount of illumination necessary; the location of the window and the type of display. In downtown locations where there is considerable light surrounding the window from the street illumination and adjoining windows, more light will be required to make the display stand out than would be necessary where the store is located in less brilliantly lighted districts. Displays of dark objects or materials absorb considerable light, and therefore will require higher levels of illumination to stand out effectively. Where the higher levels of illumination are required, 150-200 watt lamps twelve inches apart should be used. Lamps with blue bulbs, known as daylight lamps, are often used to give a daylight appearance to the show window. Where they are used, the next larger size to that ordinarily employed in clear lamps should be installed. This rule should likewise be observed where color screens are used, for a larger percentage of light is absorbed by the screen and the intensity will be lowered quite materially if a larger size lamp is not installed. The addition of footlights for certain types of display will markedly increase the effectiveness of the lighting system. All windows do not need footlights, but the installation of them is just another means of obtaining the flexibility and artistry that is possible.

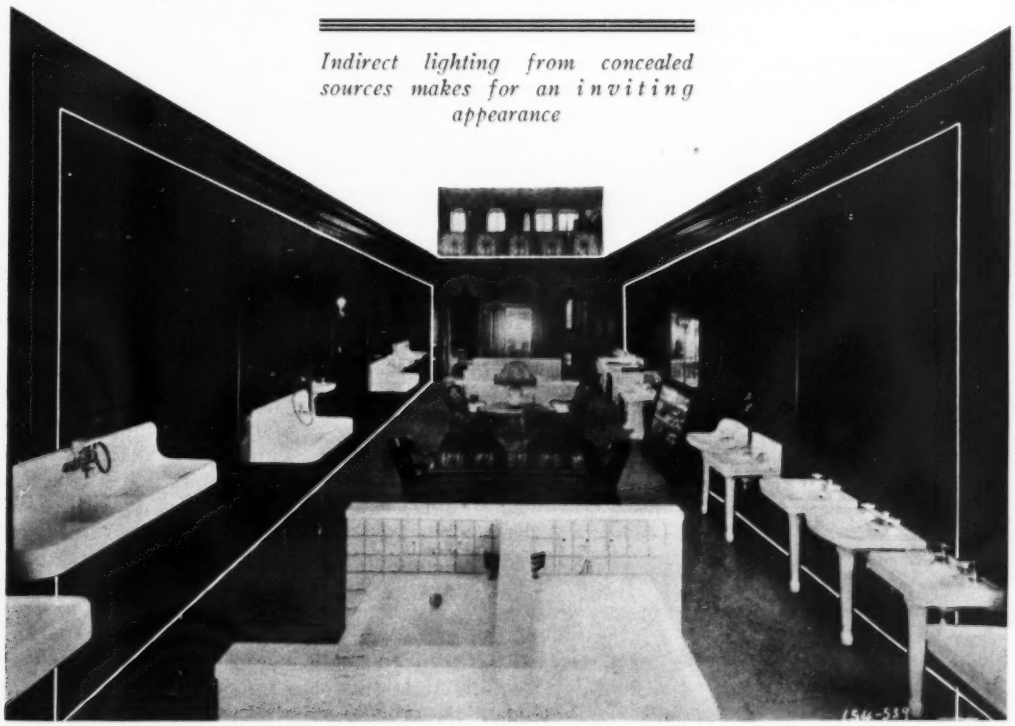
It is of the utmost importance that all lighting equipment be concealed from the view of the passerby. Nothing will mar the effectiveness of the window like visible reflectors and lamps. Valances of cloth hung between the reflector and the plate glass will add to the decorative appearance of the window and serve to conceal the reflectors from view. Where the windows are open-backed, a curtain should be hung to screen the units from the view of persons in the store. Care should be exercised by the window draper so that highly polished objects will not be placed so that the light from the units is reflected into the eyes of observers.

The reflectors should be so placed that no light will be spilled on the sidewalk, because light so misdirected is wasted and also detracts from the appearance of the window. Several shapes of reflectors are available for the proper distribution of light in deep or shallow displays, and the type should be chosen which will best suit the proportions of the window.

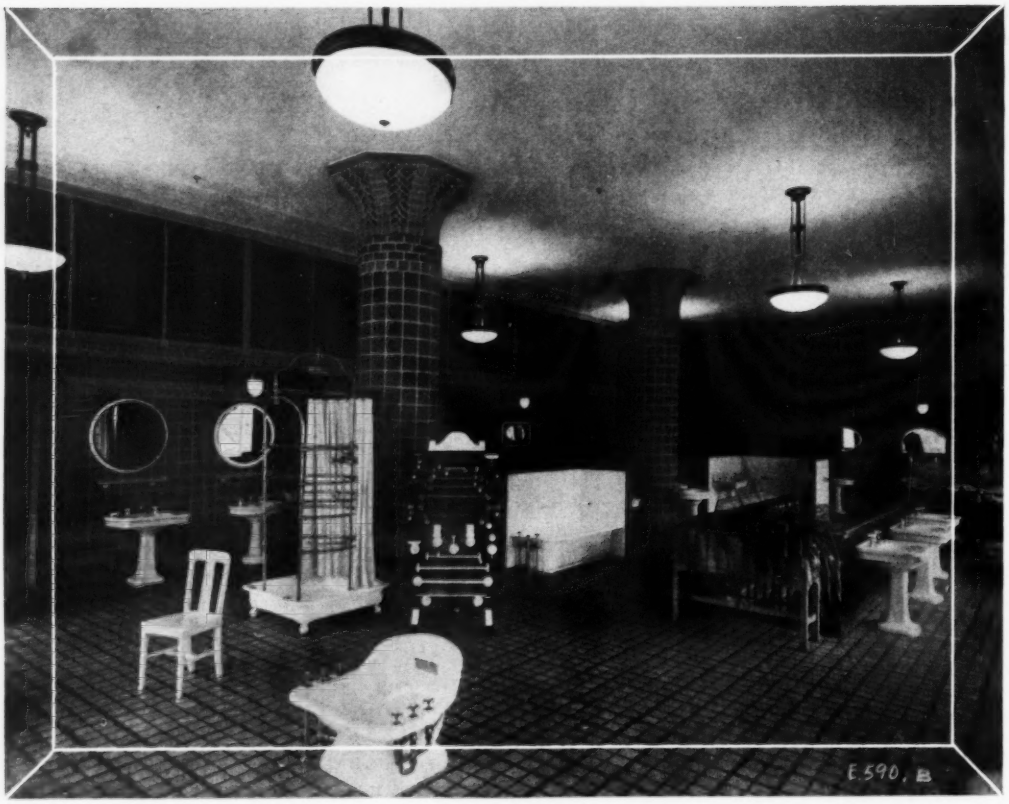
Every progressive merchant knows that he is not capitalizing 100% on his show window investment unless his display can be readily and easily seen. Window reflections have always been the bane of display experts. A window in which the plate glass reflects various images of passing objects or buildings across the street, such as the one in the illustration, does not stop the passerby or even attract his attention to the display.

Overcoming Reflections

Unfortunately, no entirely satisfactory method has yet been developed to altogether overcome these daytime reflections. But one method which is effective and fairly satisfactory is to increase the wattage from 200 to 500 watts and space the lamps approximately fifteen inches apart. Three circuits should be used because during the night time it will be found economical to turn off part of the system as half or one-third of the lamps will be sufficient to give a real stopping



Indirect lighting from concealed sources makes for an inviting appearance



Light is well used here to aid the customer in making a choice

power to the display during the night promenade of prospective customers.

The versatility of light is famliar to theatre-goers the world over. Though the methods by which the effects are accomplished are not so well understood by the layman, the stage dressing ability of light is recognized by all. It is this value which window display experts have seized upon as their own; reasoning quite logically that what can be done on the stage can be accomplished quite as successfully in creating a beautiful setting in the show window.

Touches of color here and there within the window catch the fancy and draw the glance of the evening shopper. Colored light, however, must be applied with care, so that the main features of the display will not be lessened, but will blend harmoniously into a pleasing and attractive picture.

Many advances have been made in the art of show window lighting in the last five years, and no merchant who is striving to capitalize the full value of his window display can fail to give his first consideration to the lighting.

How Light Sells

Today your show windows invite the customer to come in; and he looks around for what he wants confident that he will find it as well displayed as the beckoning show windows have promised. And as he looks around, a number of things that he probably hadn't thought of buying sell themselves to him—by display. There never was and there never will be a better salesman than the purchaser's own eyes, and the light by which they see. It is sight, and therefore light, that creates interest that forms the customer's estimate of value, and that clinches the sale.

The reader can, without much difficulty, recall some poorly-lighted store where he has entered to make a purchase, attracted within perhaps by a vivid outside display. The insufficient amount of light inside gave a dingy, depressing atmosphere to the store; the goods were not well displayed, for the poor level of illumination did not make them stand out; the store, perhaps did not seem as clean and neat as it actually was—in fact, the desire to buy was deadened and had been overcome by a greater desire—to leave, and quickly. The show windows had made a promise, which the store interior did not fulfill and a sale was lost.

A Test of Good Light in Increasing Sales

A test was made some time ago in a Chicago store which proves rather definitely that better lighting inside the store is a big and positive factor in increasing the sale of merchandise.

This store was originally lighted neither more nor less brightly than the average store—about like the majority of stores in any business district. Without removing the old lighting installation a new up-to-date installation was put in. For a period of many weeks, the store was operated, alternating the two systems of lighting daily, Monday under the old lighting, Tuesday under the new, and so on. A careful count was kept of all people entering the store and the amount of goods bought by each customer.

Here is the startling fact: The

average dollar-and-cents purchase per customer was 29% higher under the better lighting conditions and, of all the people who entered the store, nearly 12% more actually bought goods under the new lighting than under the old.

The test is obviously as fair as possible as every condition of weather, time and personal reaction of sales force and customers was duplicated under both kinds of lighting.

These increases in sales might be less or more for other types of stores. The actual figure is not of such great interest as the proved fact that better lighting may surely be counted upon to result in a large increase in the amount of goods sold by the merchant.

Light—The Silent Salesman

Every store must sell itself before it has a chance to sell its merchandise. The well-lighted store enjoys an atmosphere of quality and reliability and a clean, cheerful interior that leaves a favorable impression on the minds of customers. The goods displayed in such a store are bound to sell.

The progress in the development of electric lamps has made it possible to obtain an abundance of light at a comparatively small expense.

In order to discuss the quantity factor of light, there must be some simple means of expressing the amount of illumination at any particular point. Illuminating engineers have established, as the unit of illumination, the amount of light on a surface held one foot away from a candle. This unit is called the foot-candle. Thus, if two candles side by side lighted the surface, it would be illuminated to a level of two foot-candles.

Your Choice of Lighting Systems

There are many lighting units on the market that are well adapted to store lighting and they differ widely in their characteristics. The three general systems of illumination—direct, semi-direct, and totally indirect—are all applicable for stores. The character of the store will largely determine which system is preferable. Direct lighting from enclosing white or prismatic glass globes is probably the most widely used in stores today and is very satisfactory from the standpoint of efficiency and appearance. Semi-indirect units provide a soft, well-diffused light. The ceiling and upper sidewalls should be finished in light colors in order that good reflecting efficiency will result. In a totally indirect system all of the light is reflected to the ceiling and thus distributed and returned. Such lighting is well suited for specialty stores, where it is desirable to create a quiet and dignified atmosphere.

Local conditions will govern the size of lamp that is to be used. In general, however, lamps smaller than the 200-watt size should not be employed in order to produce the desirable standard of illumination. It is recommended that where the spacing between outlets is greater than twelve feet 300-watt lamps be used, and if greater than fifteen feet, it will be found necessary to employ the 500-watt size.

Spacing the Outlets

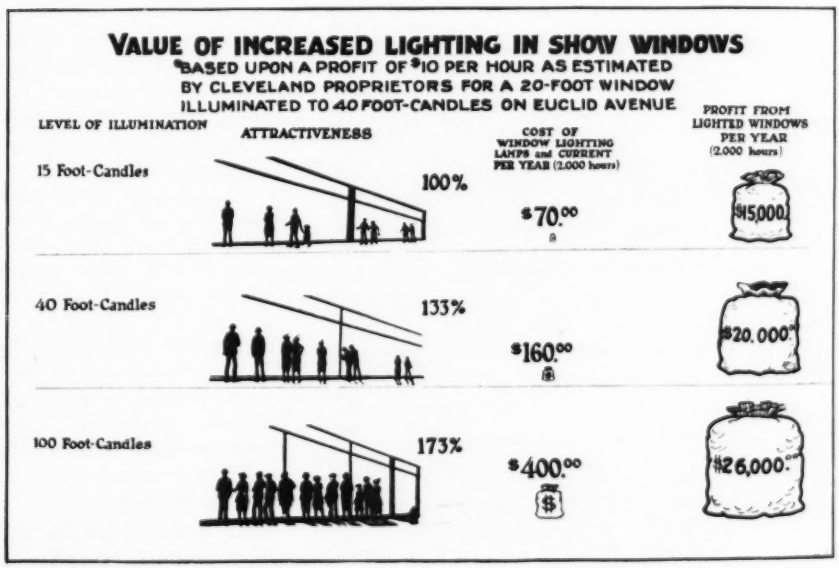
The lighting units should be uniformly spaced with respect to each other and to the area of the ceiling. The distance between them should not exceed their mounting height above the floor. A common "illness" in small stores, around eighteen feet in width, is the result of having only one row of lighting units where two should be used. The symptoms of this condition are shadows thrown over the merchandise by any one trying to examine it. The cure is effected by placing another row of units in the store. A 10 ft. x 12 ft. spacing with the units approximately four feet from the walls will be highly satisfactory.

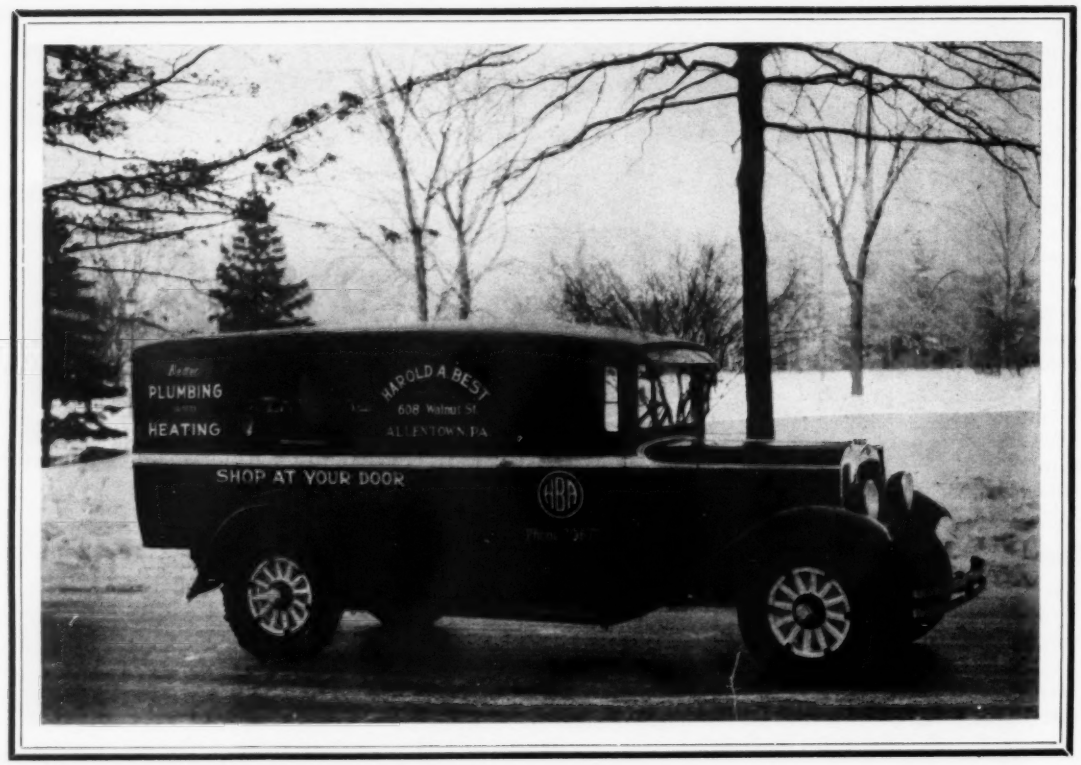
Show Case Lighting

There are two types of equipment on the market especially designed for show case lighting. One of these types consists of long, trough-like, reflectors having either an aluminum or mirrored glass surface. Tubular lamps of the 25- or 40-watt size can be used in these reflectors.

The other type consists of a small angle reflector of mirrored glass and employs a regular 25- or 50-watt lamp.

The equipment should be located along the front edge of the case and rendered as inconspicuous as possible, so as not to detract attention from the display. The sockets should not be spaced further than twenty-four inches apart and with 25-watt lamps on this spacing, the merchandise will be fairly well displayed; employing the 40-watt lamp, however will give a real punch to the show case.





"Classified" Display Ads Bring Best Results for This Merchandiser

"I HAVE been in business here in Allentown, Pa., seventeen years," remarked Harold Best, plumbing and heating contractor, "and I have used practically every form of advertising that has been devised for this particular business, and I have found that for the money invested the classified display advertisement is by far the most profitable that I have used. We never were able to check up definite results from the various forms of advertising until we began to use classified display. The very first ad of this kind that we inserted in our local paper resulted in direct sales, and ever since then we have been able to rely upon these ads to bring us business."

"Why," he was asked, "should a display ad on the classified page bring better results than a display ad on another page?"

"I don't know why," he replied, "I only know the results. I suppose the classified page is read by more people than the other advertising pages, or maybe it is read more carefully."

To illustrate his point he produced a large scrap book in which had been pasted hundreds of advertisements clipped from the newspapers. Paging through the front part of the book he showed specimens of display copy which he had used for years. Then turning to other pages he showed copies of the display classified. In both styles of advertising he had listed the same articles at the same prices, yet one style of copy brought results and the other didn't.

Priced for Quick Sales
$6.10
Just what you have been waiting for —High Grade, guaranteed nickel-plated sink faucet at a very low price.
Faucet, less Soapdish— $6.10 installed
Faucet, with Soapdish $6.35 installed
Harold A. Best
Better Plumbing and Heating
608 WALNUT ST.
Registered
Dial 2-9677

Results from Ads

"But what definite results did this classified display bring?"

MODERNIZE YOUR KITCHEN

By Replacing That Old Sink

COMPLETE INSTALLED

42 In. Roll Rim Enamel Kitchen Sink Installed $33.25

Price includes labor, permit, nickel plated swinging spout, soap-dish, faucet and trap to floor

42 In. same as above with apron installed $43.25

NO EXTRAS

HAROLD A. BEST

REGISTERED PLUMBER

608 WALNUT ST. Dial 2-9677

This and the other ads shown are carried in the "Classified" section

"A four-inch ad sold six bath tubs within a few days. The same size ad sold kitchen sinks, bowls, faucets and practically everything we advertised. Besides we added fifty repair customers to our list within a few months."

Mr. Best is the only man in this district who operates a really complete plumbing "shop on wheels." An inventory of the materials and tools carried on this truck covers twenty closely typed pages, listing more than four thousand parts and ninety-eight tools. It is Mr. Best's proud boast that during the years he has been operating this "shop on wheels" he has never been compelled to return to his store for additional material or tools to complete a job. Some record.

Truck Builds Customer List

This repair service is also featured in his advertising and he is constantly adding new customers for this repair department. This truck has also been of much benefit in increasing his retail sales, because he carries a considerable supply of new material for immediate sale.

"Before we operated this truck," he said, "we used to buy flush balls in dozen or two dozen lots. Now we buy them by the gross and sell a gross as quickly as we used to sell a dozen. The same applies to a large variety of small plumbing supplies, in many of which we have increased our business more than ten times, and all sold from this 'shop on wheels.'"

"How do you account for this tremendous increase in retail sales?" he was asked.

"Simple enough," he said. "When we stop at a house to do a repair job we may be asked, 'Do you have this or that?' We can answer the customer that we have the goods right with us, and presto, the sale is made. If we would answer, 'Yes, we have it at the store,' the customer would reply, 'All right, I'll stop in sometime when I pass that way,' and 95 times out of a hundred that sale would be lost to us. Merchandising in the plumbing and heating business seems to be

This window is the neighborhood business-getter

Only a Few at This Price
ACT QUICKLY

42 in. Roll Rim Enameled Kitchen Sink, Complete as Shown—
Special $24.55
If Lower Price Elsewhere Beware of Seconds
Dial 2-9677 for Price Completely Installed.
Harold A. Best
Registered Plumber
608 WALNUT STREET

approaching the status of every other retail business, that of giving the customer what he wants when he wants it."

"How do you keep a record of your fill-in requirements for the truck at the end of each day?"

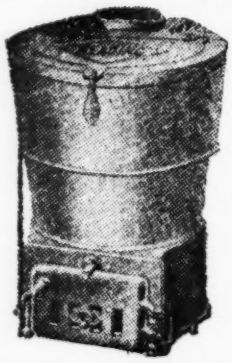
"We use the perpetual inventory system just the same as in the store. A record is kept of each item as it is removed from the truck, and when we return to the store we replace these articles that were sold during the day. In this way we go out each morning with a complete stock of material."

"Sounds simple enough," I admitted.

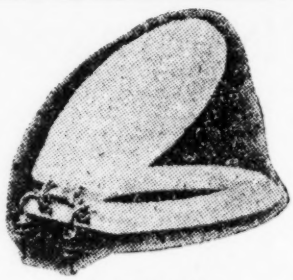
"It is," said Mr. Best, laughing, "if you don't forget to keep your records."

In merchandising the complete repair shop on wheels, Mr. Best sent out a heavy card, bearing a picture of the truck very much as seen at the head of this article. Below the truck appeared the words: "Save this Card! and these Hose Washers will be ready during the dry season." Attached to the card were several hose washers, thus easily kept until needed by the home owner who received them—and who had the picture of the truck, with the name of Best on the car, before him when he needed a washer.

Guaranteed Plumbing



30 to 40 gallon bricklined hot water tank heater. Special at.....$11.00
Call 2-9677 for installation price
Harold A. Best
Better Plumbing and Heating
Registered
608 Walnut Street



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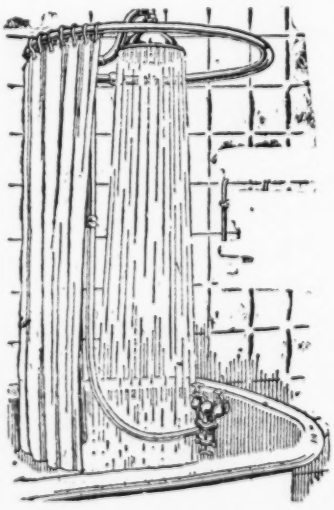
Mr. Best maintains a display window which is changed regularly and kept full of salable items of plumbing and heating merchandise. He does not have a big display room because of the splendid co-operative program which is in effect in his community. A wholesale showroom, used by the master plumbers of Allentown under a plan that has been proven satisfactory, makes it possible for him to operate with only the window.



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Legality of Restrictions from Engaging in Plumbing and Heating Business

By LESLIE CHILDS

WHERE a going plumbing and heating business is sold, and the seller agrees not to thereafter compete with his buyer within certain limitations, the question of the scope of such agreement may become one of great importance to all concerned. Of course, an agreement of this kind will prevent the seller from actually opening a competing business. That much is clear.

On the other hand, will it also prevent such seller from entering the employment of a firm that competes with his buyer? Indeed, here is a point that has been a frequent source of litigation in many fields of business, and as an illustration of judicial reasoning thereon in a case arising in the plumbing and heating field, the following decided case may be examined with interest and profit.

Plumbing and Heating Business Sold

In this case the defendant owned and operated a plumbing, tin work and heating business in a mid-western town. The plaintiff purchased this business as a going concern, and the defendant signed the following agreement in respect to refraining from entering into competition thereafter.

"It is agreed by and between the parties hereto, and as part of the consideration herein, that the said [defendant] will not go into or conduct, directly or indirectly, a plumbing, tinwork, or heating business within the county of * * * and state of * * *, for a period of ten years from this date, * * *."

Following this, the plaintiff took possession of the business and was well pleased with the returns, but shortly thereafter he was informed that the defendant had installed a heating plant for a resident of the county in which the business was located. Defendant then continued to perform plumbing and heating work for the general public, working by the day or hour, although he did not open up any regular place of business.

In addition, defendant began doing work of this kind for a competitor of the plaintiff, and the latter protsted that this was a violation of the contract between them. Defendant, however, took the position that so long as he did not operate a regular place of business his contract did not forbid him from working at his trade for others, either by the day, hour, or job.

The parties failed to reach any agreement in the matter, and finally plaintiff filed an action in which he demanded an injunction forbidding the defendant from doing work of this kind. The case reached the higher court on appeal, and here in stating the question before it the court said:

The Reasoning of the Court

"The real inquiry in this case is whether a contract which provided that the seller 'will not go into or conduct, directly or indirectly, a plumbing, tinwork, or heating business within the county,' is broken by the seller taking employment as a skilled workman with the plaintiff's competitors, and by his entering into contracts to install heating apparatus and other work to be paid for by the hour, day, or piece. * * *

"The object of the contract was to prevent defendant from using his skill, experience, and acquaintance with customers to the detriment of the vendee. Some of the acts of business in which defendant engaged were the same as to the nature of the work and the manner of payment, as it had been the custom of [the defendant] to do while he was in business. It seems to us that the words 'go into or conduct directly or indirectly,' such a business, include such transactions within their terms.

"The mere fact that defendant did not carry a stock of materials on hand is of little consequence. [The defendant] has not carried material for ceiling in stock when in business, and had never carried a large line of furnaces. Defendant may have been guilty of a lack of forethought in entering into such an agreement, but this cannot operate to justify a breach of its conditions. We think he has broken both the letter and spirit of the contract. * * *

"We do not wish to be understood as saying that it is an invariable rule that the vendor in such a case may always be prevented from entering the service of a competitor as a workman. It can easily be seen that, where the workman is practically a cog in a machine, and his personality and business-getting ability are submerged in his work, the effect of such employment upon the business of the vendee would in all probability be *nil*, and there would be no reason for a court of equity to interfere.

"The nature of the business which is sold, the character of the transactions in which the vendor is or may be engaged, and which are claimed to be in violation of the contract, and the probable and reasonable effect of such transactions upon the business which has been sold, must all be considered. It is only when an injurious effect can be reasonably made apparent that an injunction will be allowed." (136 N.W. 659.)

Conclusion

In accordance with the quoted reasoning, the court directed that an injunction be issued against the defendant forbidding him from continuing to work at the plumbing and heating business as he had been doing since selling his business. The court taking the position that such transactions, in the light of the facts of this case, amounted to competition with the plaintiff and as such was a violation of the provision in the contract of sale forbidding competition.

(Continued on Page 95)

RETAIL ADVERTISING SERVICE

ONCE more we give our readers copy designed to hold the attention of the home owner on the home in 1932, and to urge him to spend his money there, rather than on luxuries. We believe the public is ready for such a selling message and suggests its use in every way possible.

In 1932
give preference to the home

THIS year is one in which we should think carefully before making expenditures. We are urging that the home be given preference in the year's budget—for two reasons: First, money spent in the home is a safe investment; Second, because the building industry is so important in the national economy. Put it to work, and fifty other industries are affected. Let's center our attention on the home this year in order that it may be a source of strength and comfort in these difficult times.

(In this space Your Name, Etc.)

For one column space

Let's Make 1932 a "Home Year"

The American people are, we believe, through with the era of frenzied living and spending and running. Let's concentrate on the home in 1932—the best investment possible, and certainly a source of courage in facing the difficult tasks of bringing prosperity back to the country. With new interest in home life, with more comfortable and convenient homes, the American business man and woman will go to his or her job in a more optimistic and effective mood. The home is, as it has always been, the nation's stronghold.

(In this space Your Name, Etc.)

A two-column newspaper ad

Dear Sir:

One thing seems to have come out of the troubled months we have been passing through--it seems that we are going to turn our attention to the home. There are signs that we are weaned from our period of frenzied running about.

It is a healthful development. The home has always been, and will always be, the source of the major national virtues. We believe that anything done to make the home a pleasant, convenient place to live in, and attractive to the younger generation, is something done to perpetuate the virtues that have made America a great nation.

So, in facing our merchandising problems for 1932, we are urging a new attention to the home. While we have a business interest in seeing sanitary arrangements in the home brought up to date, we can still hold to the wider, broader hope that we shall have such a renewed interest in home life as this country has ever known.

On the practical side, if there is anything we can offer in the way of advice or service on plumbing matters, please feel free to call upon us. We shall be happy to serve you.

Very truly yours,
HARRY BROWN

A plumbing sales letter

▲

The copy on these two pages is for the use of readers of DOMESTIC ENGINEERING—without charge. If you wish to use the illustrations, they are sold at $4.20 for twelve—three months' service.

If you are using any of this copy, send us samples. We like to keep in touch with what our readers are doing.

▼

THE HOME COMES INTO ITS OWN

Harry Brown, local plumbing contractor, indicates that he believes that we are due for a renaissance of interest in the home. "We are drawing back from the frenzied living of the post-war years," he says. "Men and women are beginning to realize again that in the home is all that has contributed to American civilization.

"It is, perhaps, the healthiest sign of the times, for if it results in stimulating the building industry—as it no doubt will—we shall have made a long step toward prosperity. When the building industry is operating heavily, some fifty other industries are carried along with it. If 1932 is made a year of home-making, it will be a year of hopefulness."

Hand this publicity item to your newspaper

Automatic Heat

The merchandising efforts of the heating contractor should be directed as far as possible toward the idea of automatic heating for the home. That idea has taken hold, and the men who aggressively push it will profit by it.

A two-column newspaper ad

More Heating Comfort at Less Cost

There are a number of heating problems which home owners seem to take for granted. Take the matter of keeping the home comfortable in mild weather. With a hand-fired plant, it is almost an impossibility, because in order to keep a fire going, too much heat is produced for comfort. That means waste of fuel, discomfort and dissatisfaction. Modern, automatic, heating control is possible, whatever fuel you burn. We'd be glad to go over your heating plant with you and make our recommendations. It will cost you nothing to investigate.

(In this space Your Name, Etc.)

Buy Heating Comfort

Can you keep your house at 70° without any difficulty?

WHEN it is mild, do you find the temperature in the house mounting to a point that is uncomfortable? If so, it means that your heating plant is wasting fuel, because it lacks scientific feeding control. We can show you how to make your plant automatic, and how to secure just the temperatures you desire—no matter what fuel you prefer. If you will telephone, we'll send a competent man to go over the heating plant. Our recommendations will cost you nothing—and you will be interested in the economies possible. Not to speak of the added comfort and convenience.

(In this space Your Name, Etc.)

A single column ad

ADVANCES IN HEATING BRING NEW COMFORT

"It would be possible," says Harry Brown, local heating contractor, "to go back to the immense fireplaces of pioneer days. But no one wants to. We have advanced a long way from such heating methods.

"Yet the fact that we have put the heating plant in the basement isn't the last development in heating, although a great many people continue to think so. Our forefathers, who roasted themselves on one side before the fireplace, would be amazed to know that in these days it is possible to determine at just what temperature we want to keep our homes—and then do it."

"Automatic control of feeding and of temperatures has brought the art of heating to a new high point both in comfort, healthfulness and economy."

Give this publicity item to your local newspapers

Your Window

Window displays need change. If you have a permanent display of fixtures and equipment, make changes in lighting—use the free floor space for changed displays of accessories. Property owners who pass your window will never be particularly drawn to it if it remains the same in every detail for months at a time. Change—even small changes—is what draws attention to a window.

Dear Sir:

I should like very much to have an opportunity to talk with you about the possibility of putting your present heating plant on an automatic basis.

You will be under no obligation, of course; but I feel sure that you will be interested in what can be done along these lines with whatever fuel is used.

Cold weather and mild weather alike bring heating problems. Swift rises or drops in temperature require a flexibility in the heating plant which, under hand-firing methods, it simply does not possess.

Consequently there is always a "drag" between the time when the mercury rises or falls, and the time when the heating plant has been adjusted to the call for more or less heat. The result is discomfort in the case of a rise, and discomfort and waste of fuel in the case of a fall in temperature.

Whatever fuel you burn, we can give you the comfort, convenience and economy of automatically controlled temperatures. Naturally, even temperatures are more healthful, because there is less danger of colds from overheated or underheated rooms. Just telephone.

Very truly yours,
HARRY BROWN

A heating sales letter

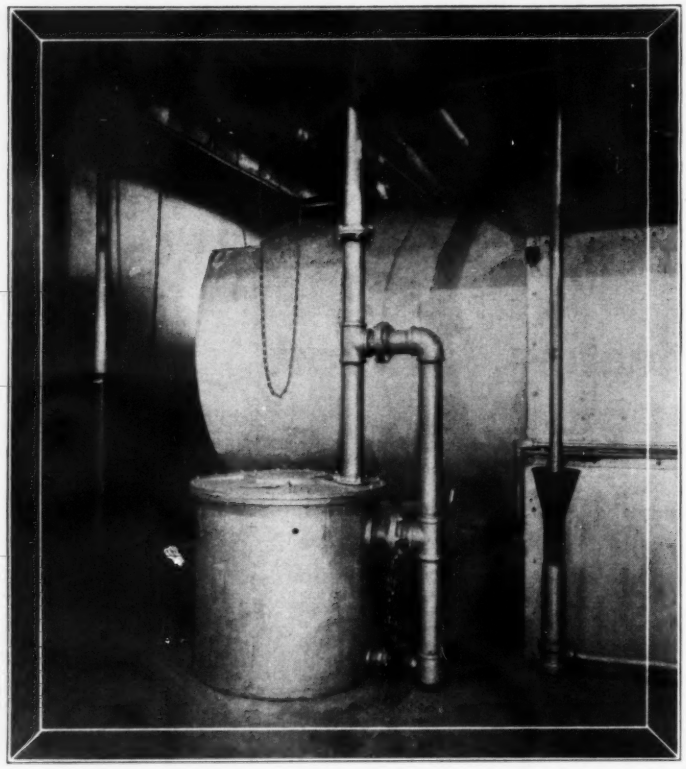

Fig. 1 — This shows the condensing tank in the building referred to in this article

How Sewers Are Protected from Steam and Hot Water

This article describes the methods employed in a noteworthy public building located in Connecticut, to prevent damage to sewers and house drains frequently caused by the careless discharge of steam and hot water

By HARRY DAVIDSON

WHAT happens when large volumes of steam and hot water are suddenly discharged into the house drain, into the house sewer or into the public sewer?

When water at high temperature has its pressure released, the water instantly flashes into steam, expanding in all directions.

When such a discharge of water at high temperature is discharged into the house drain, the entire plumbing system immediately fills with steam. Under such conditions there is great danger to the piping, due to the expansion that would take place in it. This danger would be especially severe in the case of cast iron pipe. The caulked joints in such piping might become loosened and forced out of the hubs, and the entire system be damaged.

When discharge of high temperature water is made into the house sewer or public sewer, a pressure is created in the sewer which should always be guarded against.

In high pressure systems the temperature of the boiler discharge might reach as high as 350 deg. Fahr.

If there were no regulations governing the discharge of hot water and steam into house drains and sewers, it is clear that serious results would be certain to come.

TRADE PENBERTHY PRODUCTS MARK

A SYMBOL

ITS MEANING TO THE PLUMBING CONTRACTOR

When a plumbing contractor installs an electric sump pump or hydraulic cellar drainer bearing the trade mark reproduced above, it means that—

—he will earn a fair profit

—his profit will not be dissipated in servicing

—installation is simple and can be quickly made

—reliability and operating economy have been proved

—the pump is immune to corrosion—of copper and bronze throughout

—a financially responsible manufacturer stands squarely behind him in assuring satisfaction to his customer

—the manufacturer has the experience, resources and research facilities to build to a purpose, not to a price

—the manufacturer is actively creating the demand by using large space in leading architectural and building publications.

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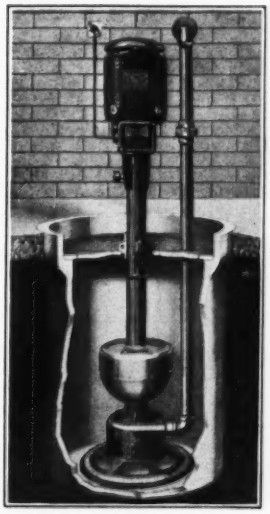
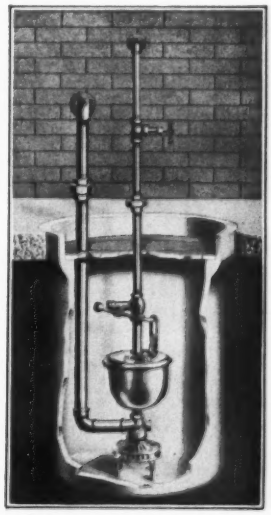


Penberthy Automatic Electric Sump Pump



Penberthy Automatic Cellar Drainer (Water Operated)

COPPER AND BRONZE THROUGHOUT

PENBERTHY PUMPS REMOVE SEEPAGE WATER

It is therefore not strange that nearly all plumbing codes, even those which are not particularly thorough-going in their regulations, will generally have an ordinance governing this thing.

Regulating of these dangerous conditions often goes no further than such a statement as—"The temperature of liquid wastes discharging into a

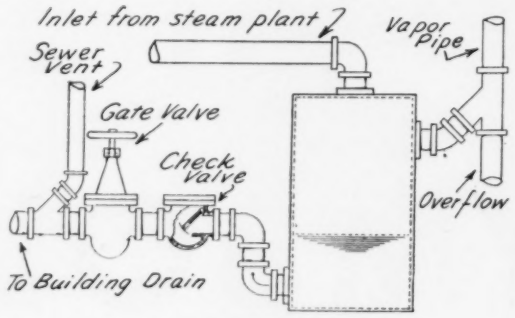


Fig. 2

building sewer or drain shall not exceed one hundred and forty degrees Fahrenheit."

A very few ordinances make the minimum temperature 120 deg. Fahr., but general practice agrees that 140 deg. Fahr. is safe.

The following ordinance covers the requirements very satisfactorily:—

Exhaust Blow-Offs and Drip Pipe Connections

"The exhaust, blow-off, sediment or drip pipe from a steam boiler shall not connect directly with any sewer, drain, soil or waste pipe. Such pipes shall discharge into the top and above the line of discharge of a suitable closed tank or condenser, made of wrought

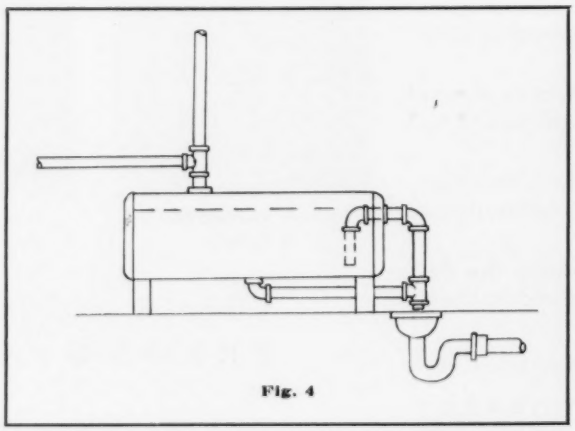


Fig. 4

or cast iron, provided with a relief pipe, of at least double the area of the blow-off pipe, extending to the outer air above the roof. The waste from said tank or condenser shall be taken from the bottom and be at least one size larger than the inlet, but not less than three (3) inches in diameter, and provided with a trap that has a seal of not less than twelve (12) inches and wherever possible shall connect to the building sewer and not to the building drain."

The entire subject concerns large plants much more than the smaller ones.

In Fig. 1 we show a correctly connected condensing tank which serves a large public building.

In this instance the tank is located in a basement, with the gravity building drain carried on the ceiling overhead. This necessitates discharging the condensing tank to a sump, from which point it is pumped to the gravity drain.

Discharging first to the sump acts as a safeguard, so that its final discharge into the building drain is a safe proceeding, whereas it is often required that to ensure complete protection, such discharges should be made into the building sewer.

The ordinance which we have quoted above calls

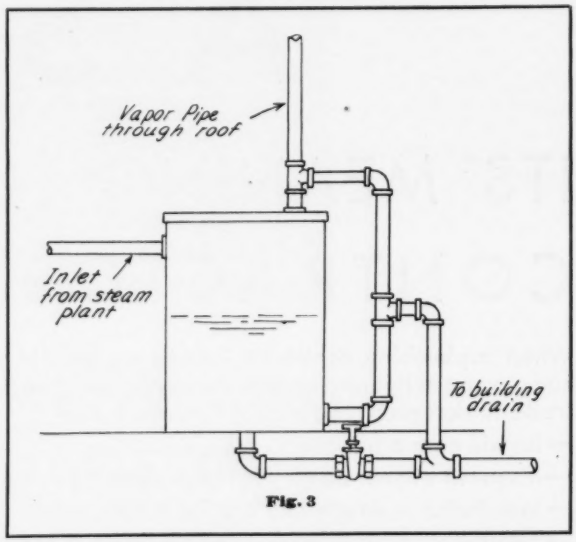


Fig. 3

for discharge into the building sewer wherever possible. Good judgment should be exercised concerning this feature of the connections. Under some conditions, as in Fig. 1, it is safe to discharge into the building drain. In some other cases, under less favorable conditions, it might be better judgment to discharge into the building sewer.

Referring to Fig. 1, the pipe leading to the ceiling is the vent for the condenser. In order to perform most efficiently, the discharge line from the boilers should enter the condensing tank above the water line. Under this condition, the vent pipe or vapor pipe as it is sometimes called, catches the steam immediately and exhausts it to the outer air. Owing to the nature of its duties, this pipe should always be carried separately through the roof,—never under any circumstances connected into the regular vent system.

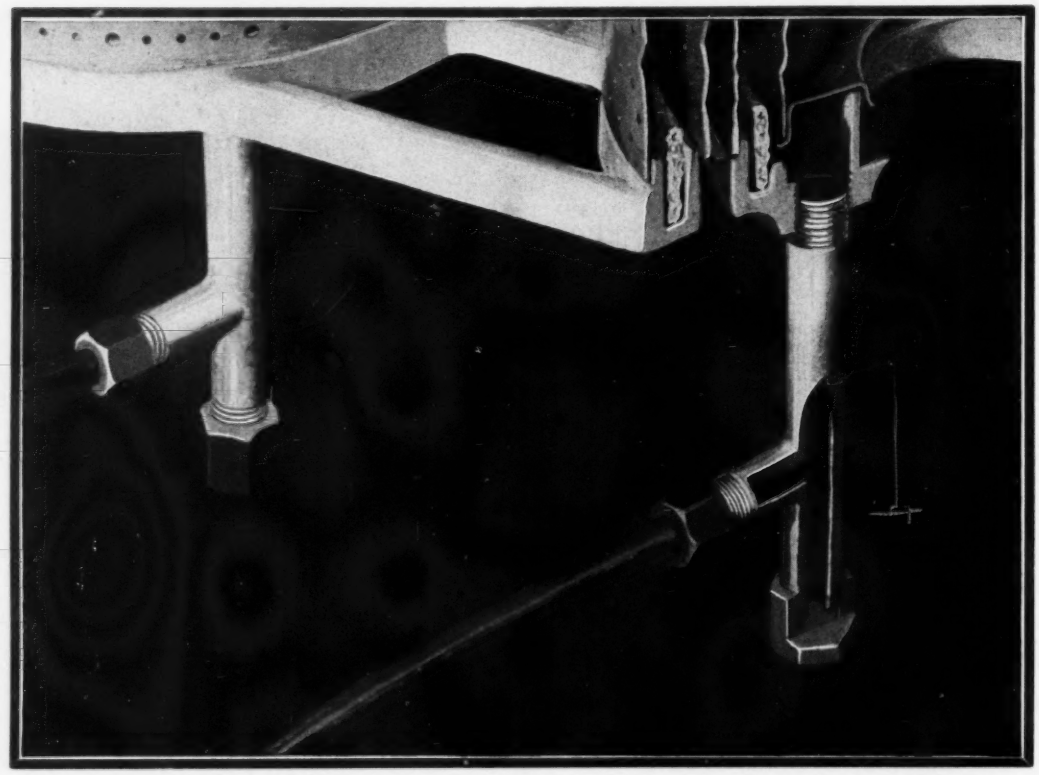
The connection that is made into the vapor pipe is a vent for the condenser trap. (Continued on Page 95)

AN
EDITORIAL
SECTION

AUTOMATIC HEAT

AUTOMATIC HEAT SECTION

SILENT GLOW SUPERIORITIES



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The Self-cleaning Oil Feed* is exclusive with Silent Glow Range Burners. It makes the Silent Glow Range Burner definitely superior in operation.

Clean oil, that is, oil free from dirt particles and water, is absolutely necessary to satisfactory range burner operation. Silent Glow Range Burners deliver clean oil to the burner unit.

In the Silent Glow, the oil is passed first through the exclusive Reversflo Filter**, which removes dirt and water by filtration screens; then, after it has gone through pipes leading to the Microfeed Valves**, which regulate its flow to a drop, it reaches the patented Self-cleaning Oil Feed, where impurities and any surplus water automatically reach the bottom of the device, thus assuring the delivery of clean oil to the burner unit.

The Self-cleaning Oil Feed* is cadmium plated, which prevents corrosion. Any deposits are easily removed by unscrewing the cap at the bottom. It is because of refinements like the Self-cleaning Oil Feed*, that the Silent Glow Range Burner has become the largest selling range burner in the world. More than 100,000 housewives endorse it. It has brought cooking comfort to more than 100,000 homes. It has turned more than 100,000 coal or wood ranges into ranges of joy.

Because of this tremendous endorsement and because they are selling the finest range burner manufactured, backed by the largest company in the industry, a company financially strong, with a policy of unswerving cooperation with its dealers, those who sell Silent Glow Range Burners are making real money. Will you be one? Best write or wire us today.

The Silent Glow Range Burner is listed as standard by the Laboratories of the National Board of Fire Underwriters.

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*Patented
**Patent applied for

In this issue: Oil Heat in a Small Central Plant; Complete Displays Boost Gas Boiler Sales; Some Pointers on Combustion in Domestic Heating

Oil Heat *in a* Small Central Plant

By THOMAS R. SHAVER

THE gate buildings on an estate at Winnetka, Ill., a north shore suburb of Chicago, are heated by a central plant which, among other things, is outstanding because it utilizes only a small part of the area of one of the basements available, and yet serves four buildings, housing three distinct classes of occupancy, and heats by means of two separate systems of heating are employed, one being steam and the other hot water.

The group of buildings is located along the front or street wall of the grounds, and extends over a distance of about 200 ft. north and south. This is indicated in the view of Figs. 5 and 7. The first building on the south is the greenhouse, with an area of about 2,400 sq. ft. under glass. This building is connected to a two-story and basement residence building, which will hereafter be called the south cottage, and which covers a ground area of 23 ft. by 30 ft. North of this building is the main entrance to the grounds from the street, then

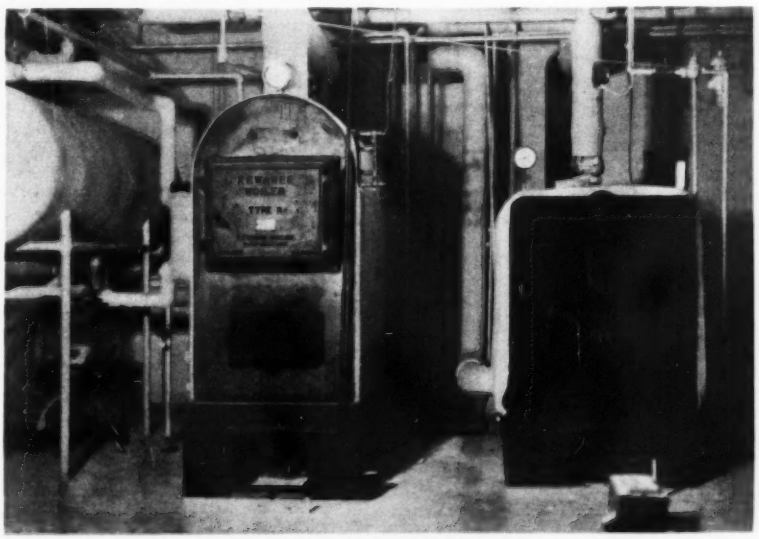
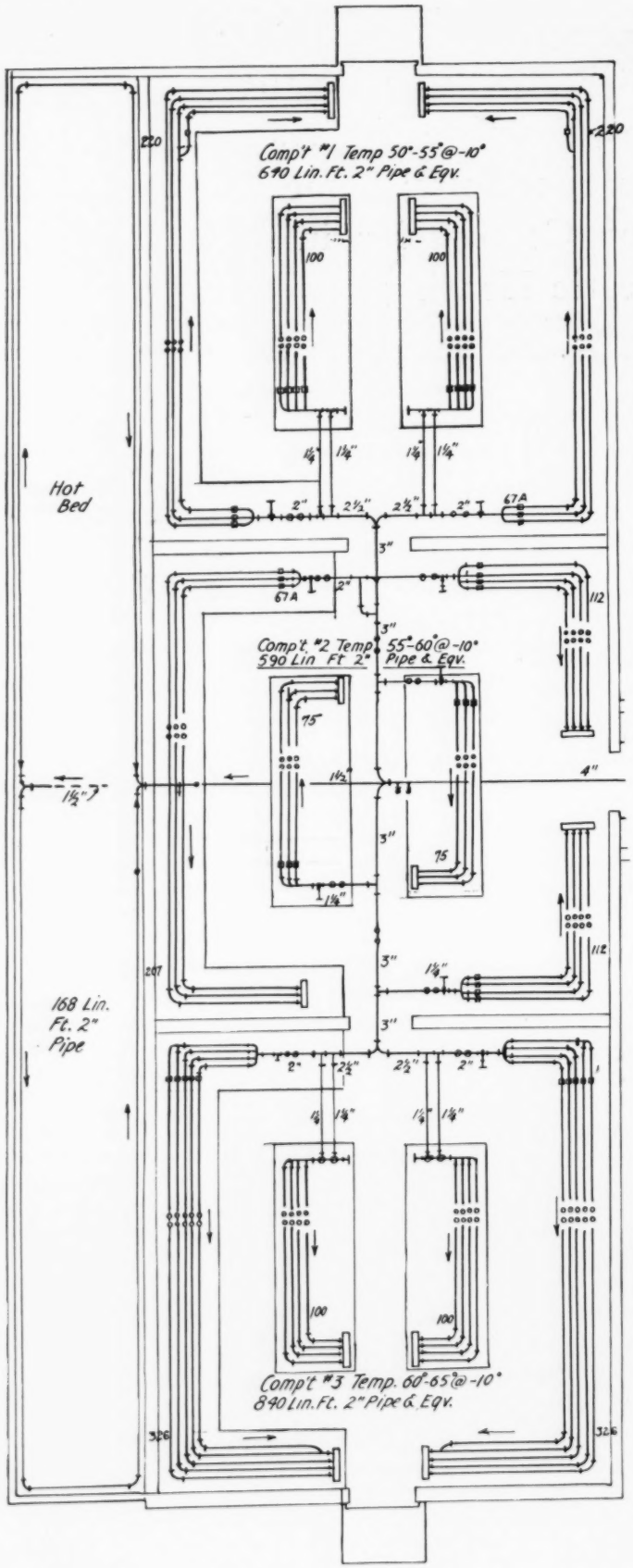


Fig. 1—This is a view of the central heating equipment which takes care of the requirements of the greenhouse, the south cottage, the north cottage and the garage. The hot water boiler is at the right and the steam boiler is at the left with the water storage tank for domestic hot water supply at the extreme left

AUTOMATIC HEAT SECTION


Comp't #1 Temp 50°-55°@-10°
690 Lin. Ft. 2" Pipe & Eqv.
Hot Bed
Comp't #2 Temp 55°-60°@-10°
590 Lin Ft 2" Pipe & Eqv.
168 Lin. Ft. 2" Pipe
Comp't #3 Temp. 60°-65°@-10°
840 Lin. Ft. 2" Pipe & Eqv.

another building, which will be known as the north cottage. This cottage is practically identical with the south cottage in size and design. Adjoining the north cottage, on the north, is the garage, a one-story building 27 ft. by 55 ft.

The two cottages are similar in arrangement to any other small house. One of the cottages is occupied by the head gardener, and the other is the home of the man who will look after maintenance and operation of all the mechanical equipment about the estate, of which there is considerable. The greenhouse is of a standard design, with provisions for maintaining different temperatures in different sections for certain classes of work, which will be further explained later. The garage provides normal space for three cars and has a pit for greasing and repairs. Compressed air for tires is furnished by a compressor in the basement of the north cottage, and gasoline is pumped by hand from a 2,000 gal. underground tank outside.

The main residence, which is about 400 ft. away from the street, is heated by gas-burning air conditioning equipment, furnishing humidification in the winter, and cooling by refrigeration in the summer. All of this air conditioning equipment is thermostatically controlled. However, it was the owner's desire to install a less expensive heating plant in the gate buildings. There was a decided limitation to the area that could be used for a heating plant, since each basement was small and each had to serve as laundry and storage space for a family. Additional space for the heating plant would have required that a part basement be dug under either the garage or greenhouse and consequently more expense in the buildings. The extra construction cost of excavation, basement walls and floor, and a supported first floor, would be chargeable directly to the cost of the heating plant, since there was no other need for the space. Economy therefore made it necessary to keep the central heating plant small and compact. Also, while the estate has a considerable amount of heating and other mechanical equipment requiring adjustments, maintenance and care, and although an ample staff of skilled employes will be available there was no desire to add another laborer, or laborers, to maintain fires in the gate buildings. The designing requirements for the gate group central plant, then, was for equipment to be compact and automatic in operation.

In the system decided upon, the greenhouse is heated by hot water, and the two cottages and the garage are heated by steam. The two boilers and the two vacuum pumps for the steam boiler, and a storage tank for domestic

Fig. 2—Here is the working plan for the hot water piping in the greenhouse. Note the building was divided into three compartments with the temperature control in the center section. The length of the building runs east and west

hot water, are all located in the southeast corner of the basement of the south cottage. They are shown in Fig. 1. Both boilers are fired by oil burners, and the domestic water heater is an indirect unit connected to the steam boiler. Ample room is left in the basement for laundry work and miscellaneous household storage. The north cottage basement has no mechanical equipment whatever except the small air compressor unit supplying the tire air lines in the garage. The oil burners are set in the ash pits of the two boilers.

The location of the heating plant was determined by the characteristics of the two systems and by the demands imposed upon it by the various services. The steady, mild heat of a hot water system has made it the accepted type for greenhouse use. In order to facilitate gravity flow, it was necessary to keep the hot water boiler near the greenhouse. This boiler therefore was set as close as possible to the greenhouse and it was centered exactly on it. The steam boiler could have been set in either basement, and would have been more nearly in the center of its radiation in the north basement but the slight saving in piping cost from putting it in the north basement would be offset by some inconveniences and a sacrifice of compactness. Accordingly it was placed alongside of the hot water boiler.

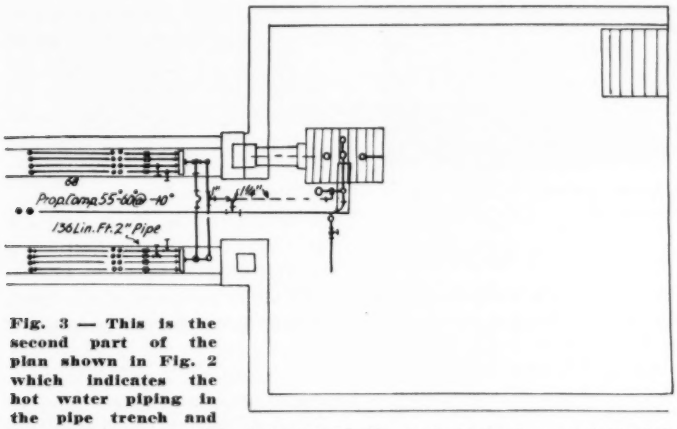


Fig. 3 — This is the second part of the plan shown in Fig. 2 which indicates the hot water piping in the pipe trench and the south basement. The hot water boiler and stack also are indicated

A 3-ft. by 3-ft. tunnel between the cottages carries piping from the boiler room to the north cottage and the garage. The north end of the tunnel, looking south is seen in Fig. 6. A system of tunnels carries the flow and return mains in the greenhouse. There is no buried piping in any part of either system.

The greenhouse is divided into three temperature zones, required for different classes of work. The radiation has been so proportioned that the west compartment can be heated from 50 to 55 deg. Fahr., the center compartment from 55 to 60 deg. Fahr., and the east compartment from 60 to 65 deg. Fahr., when the outside temperature is 10 deg. Fahr. below zero. A thermostat which operates by starting and stopping the oil burner is located in the center compartment and by holding this section at the proper temperature it regulates the temperatures in the other compartments. A limiting device on the oil burner prevents excessively high or low water temperatures in the boiler.

The greenhouse system is a closed gravity system. The boiler room floor is 9 ft. below the greenhouse walk level. The boiler is of the square sectional type. All radiation in the greenhouse is made up of coils of 2-in. pipe under every bench, and the coils are made three and four pipes wide and two pipes high, threaded into air clearing headers and manifolds, and supported on metal chairs resting on concrete piers. All flow and return mains are run in concrete trenches under the walks, and there are access holes with concrete covers at each trench intersection. Two of these are shown in the floor in Fig. 4. The trenches which contain these mains are walled and floored with concrete.

A gate valve is installed on the flow riser to every coil. The coils in the passage house are specially valved for greater heat control. Aprons are placed in front of the benches in the propagating house to trap the heat beneath the bench in order to give bottom heat for propagating purposes.

A line of 2-in. pipe is run completely around the hot bed and is hung on hooks bolted to the inside face of the hot bed wall.

A hose bibb is located in every walk in the greenhouse for watering purposes. These bibbs are connected by cold water mains run in the heating trenches.

A closed system is used carrying a boiler water temperature of 175 to 180 deg. Fahr. It was designed for a corresponding temperature of 155 deg. Fahr. in the

Fig. 4—Here is a view in the greenhouse looking toward the center section. Note the access openings to the pipe in the walks. These are concrete slabs

AUTOMATIC HEAT SECTION

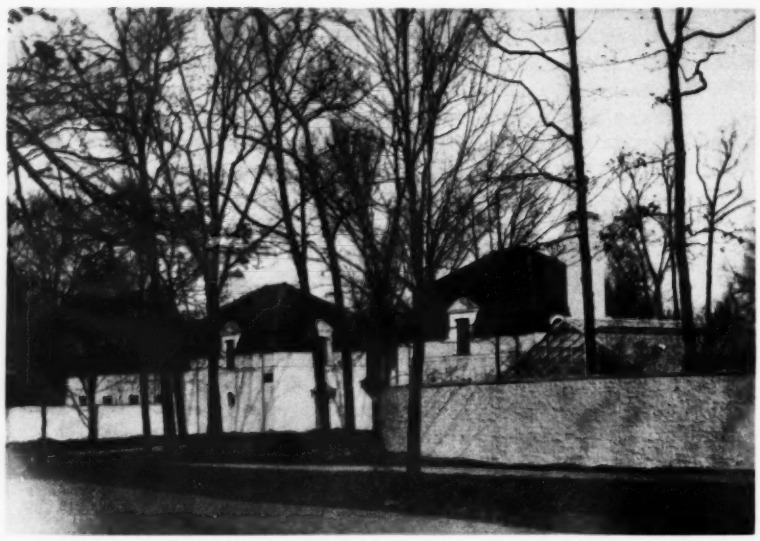


Fig. 5—View of the gate buildings from outside the estate, showing the greenhouse, two cottages and the garage beyond

radiation. These water temperatures will be lower in less severe weather in accordance with the demand. Excessive water temperatures are guarded against by a relief valve. Fresh water is supplied through a reducing valve connected to the city water main.

Since the greenhouse runs east and west and since Lake Michigan is only a few hundred feet to the east, there is a chance that extremely strong cold winds from either direction would cause an excessive heat loss on the section toward the wind, and have a neutral effect on the center, or controlled, section. In such an event enough radiation in the center and leeward rooms would be turned off to restore the temperature in the windward room to the proper figure. Infiltration during a cold wind is not appreciable, as the glass is bedded in putty, lapped tightly, and in winter the lapped joints are sealed practically airtight by the freezing of condensate on the glass, from the moist air in the greenhouse.

The system, heating the two cottages and the garage, is a two-pipe vapor system, supplying ordinary cast iron radiation in the cottages and wall type radiators in the garage. All of the latter are set along the west and north walls, which are free from doors. One of the drawings, reproduced from a piping layout made by the contractors, shows the system in detail. The heating mains (and water lines) cross under the entrance driveway to the north basement along the ceiling of the connecting tunnel which has been described. The tunnel size provided plenty of space for working. This tunnel is left open at each end since first floors of each cottage are of reinforced concrete construction and therefore there is no danger of the spread of fire if one should originate in either building. Piping to the garage is carried across the ceiling of the north basement. Return mains in the garage are carried along the wall above the floor. All steam and water piping in the two basements and the connecting tunnel are insulated.

The steam boiler is built for oil burning and the burner is started and stopped by a pressure control that keeps steam in the boiler at all times. There are two one-half horsepower vacuum pumps, set to operate alternately.

The piping for the two cottages is an upfeed system, supply risers being 1-in. pipe and returns ¾-in. The main running to the north buildings is dropped at the

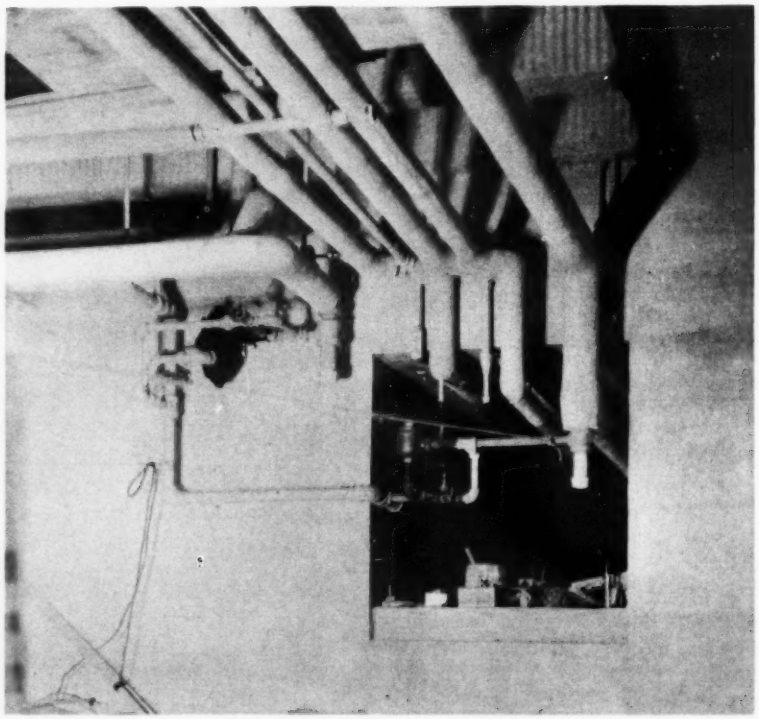


Fig. 6—Here is a view of the north end of the pipe tunnel which accommodates the steam pipes for heating the north cottage and the garage. Notice the drips

Fig. 7—Here are three of the gate buildings, the south cottage, the north cottage and the garage. The fourth building, the greenhouse, is outside of the picture at the left

south end of the tunnel to bring it into the tunnel section, and there is a rise at the north opening of the tunnel. The drip trap at this rise has a connection to the return line back to the vacuum pumps. Other drip traps, at the ends of each of the two supply mains, are shown on the piping layout, and are also connected directly into the return line. The layout shows piping arrangements and sizes.

One storage tank of 250 gallons capacity is set next to the steam boiler, and water is heated by an indirect unit connected to the boiler. This system provides all the hot water required for the two cottages and the garage. There is a drain connection and valves for back-washing the heater jacket. There is no pressure relief valve on the domestic water heater system, as the system is open to the city water main. For summer use the pressure control to the oil burner in the steam boiler is switched off and control is by an aquastat connected to the boiler water and regulated to start the burner at 140 deg. Fahr. and shut it off at 160 deg. Fahr. Steam cannot be generated during summer, so no part of the system has to be shut off.

The fuel system includes a 5,000 gal. oil tank about 5½ ft. in diameter and 30 ft. long placed underground outside the boiler room. This tank is planned to supply fuel for about four months of average winter weather. There is a manhole and cover in the top of the tank for access, and capped pipes for a measuring rod. There is a gauge in the boiler room showing the quantity of oil in the tank at all times. An interesting refinement is the carrying of the tank air vent pipe to the top of the cottage wall, thus preventing any possibility of oil spattering out, and also the offensive odor from these vent outlets from the fuel oil.

Each burner is supplied by an electric wall pump with a one gallon reservoir from which oil flows by gravity to the burners. The pumps are float controlled. The usual stack control, shutting off the burners if combustion does not start after the proper time interval, is installed. The burner pilots are gas. All burner mechanism is in the ash pits of the boilers, and the gas and oil lines are in the floor.

The main residence on the estate is not yet com-

(Continued on Page 70)

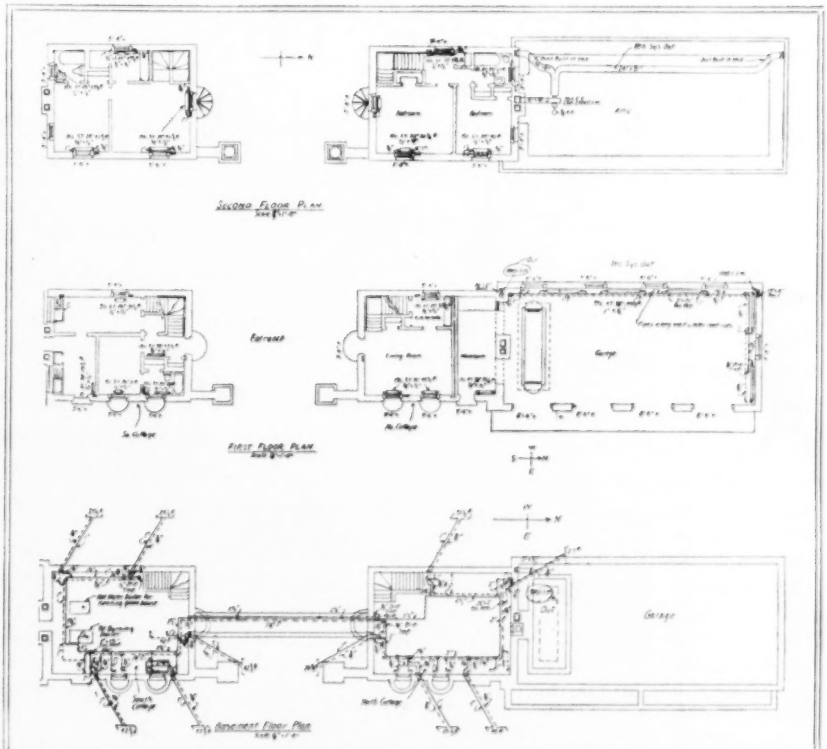
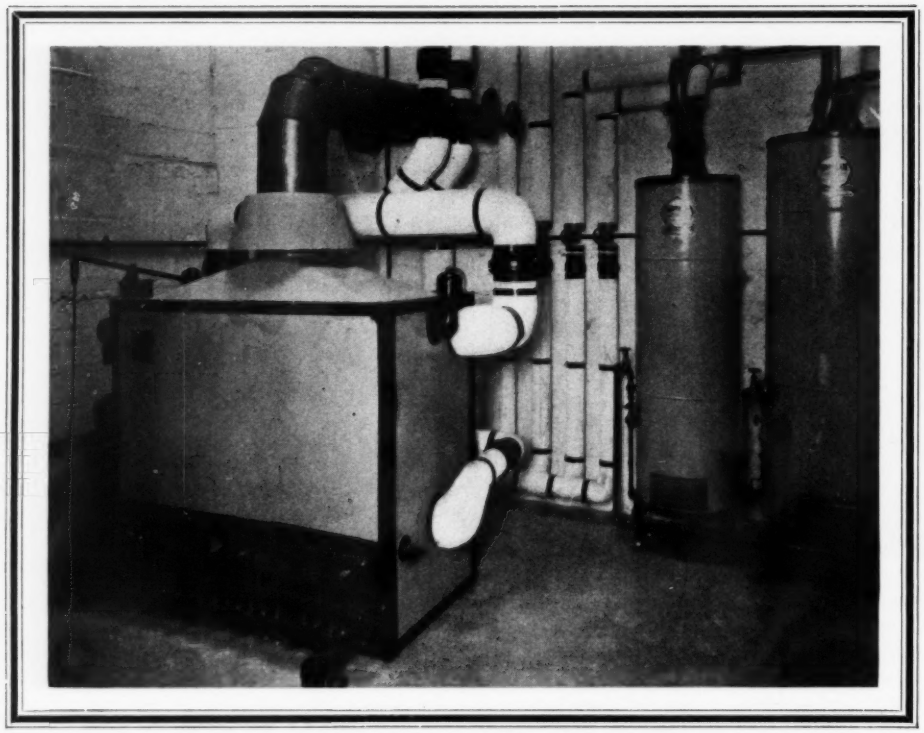


Fig. 8—These are the working plans which were developed in the heating contractor's office for the vapor heating system which takes care of the two cottages and the garage shown in Fig. 7. The ventilating system shown was not installed



This boiler, in operation in the Beck establishment, demonstrates gas as a fuel

Complete Displays Boost Gas-Fired Boiler Sales

An interview with a plumbing and heating dealer who knows how to make gas boiler sales

A. P. BECK, prominent plumbing and heating specialist in Watsonville, California, is enjoying satisfactory sales of gas-fired boilers, gas stoves, water heaters, and various other types of standard gas heating equipment, because for many years he has concentrated on two phases of a sound merchandising program—display and proper installation.

In the matter of display this wide-awake concern is a credit to the plumbing industry. In its new and attractive quarters to which it moved recently, every foot of space is used to excellent advantage to show off the various lines of merchandise. The installation service rendered by Mr. Beck is regarded as ideal, as is indicated by the fact that he handled most of the installations for the local power company, although the latter is in direct competition with him in the sale of modern heating equipment.

When Natural Gas Came

When natural gas flowed into Watsonville, a town of 12,000 population, Mr. Beck was first on the job with the most enterprising merchandising program ever attempted by a plumber in a territory of similar size. This is indicated in a spectacular manner by his record of gas range sales during the first year that Watsonville residents used natural gas for heating purposes. In that period he sold $21,000 in gas ranges, and he did an equal volume in water heaters. Mr. Beck still concentrates on this class of merchandise, although to a smaller extent due to the saturated market, and he manages to maintain a satisfactory volume by stressing gas-fired boiler installations in homes and industrial plants, by stressing ventilating-heating equipment, and by making a strong play on a variety of items, such as toilet seats, small gas

heating units, and many heating accessories for the home.

Three types of display are used, windows, store interior, and an actual gas-fired boiler installation shown in the rear of the store. Of these, Mr. Beck regards the window displays as the most effective but must be used with discretion to properly show off the various products to maximum advantage. Outlining his window display policy, Mr. Beck said:

"In our present building we have two windows and we use them constantly to show items of universal appeal to the people in town. This excludes the very specialized products, such as gas-fired boilers and ventilating-heating equipment that we sell to garages and other types of industrial establishments. The merchandise that we feature mainly in the two windows consists of gas stoves, water heaters, small gas heating units for the home, toilet seats and the like. Practically everyone who passes our windows is interested in any one of these items and a systematic effort should therefore be made to attract their attention at all times.

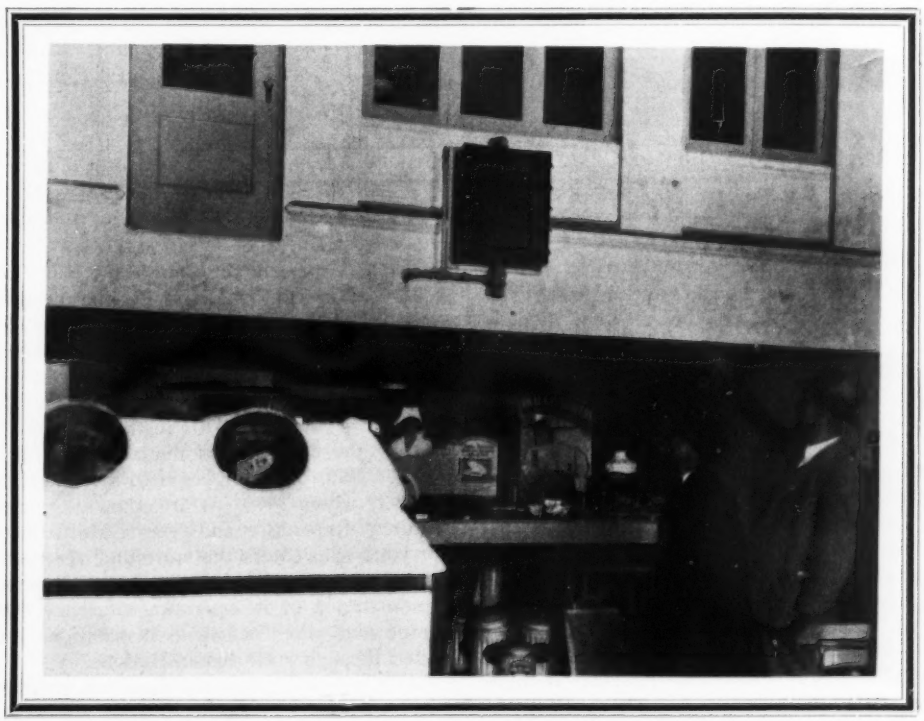
Why the Displays Pull

"Our analysis has shown that 65 per cent of the town's population reside in the district in which our store is located. This close concentration of population makes it imperative for us to be housed in a building that is extremely attractive and in which the type of window display compares with the best business establishments in the downtown shopping district. For that reason also we consider it necessary to change the window displays as often as possible. People who pass the windows day after day get tired of seeing the same merchandise displayed. We find it advisable to introduce new merchandise in the two windows about every week or so.

"Neither of our two windows have backgrounds, since we desire that folks who look into them should also see the rest of the showroom displays. This is especially effective during the evening hours, when the store as well as the windows are lighted. Those who pass the windows at that time gain a good impression of the size of the store and the quantity of merchandise featured in it. The window displays are high-lighted by the use of reflectors, which can be equipped with screens to produce a color effect desired for the product or products shown.

"Recently we designed a fire-place heater display in one of the windows that attracted a great deal of attention. Instead of crowding the window display we showed only four units, and these were shown on a special step-ladder fixture which we made out of metal, a unit on each step. To produce a warm effect an orange colored screen was used in the reflector suspended above. Behind the step-ladder fixture several other fire-place units were arranged on the floor, and behind this an assortment of gas stoves.

"Another idea we have worked out with reference to window displays is to closely associate them with merchandise regularly shown in the respective side of the store. Thus, gas stoves, radiant heaters and the like are placed at the right side of the showroom, running almost the full length from the window to the office in the rear. At the left side we reserve the floor space for water heaters, circulating heaters and similar products. As a rule, the water heaters are shown closest to the front of the store, directly behind the window, and against the wall. In front of these are shown the circulating heaters. This arrangement works out satisfactorily because circulating heaters, being lower, do not obstruct a view of the water heaters, which are sufficiently elevated from the floor. In that way we can show a lot of merchandise



Connected with the boiler, this unit heater is used for demonstrations

AUTOMATIC HEAT SECTION

on the floor without seemingly giving it a crowded appearance. Another advantage still is that water heaters can be seen at all times by those passing the window from the outside.

Demonstrating in the Store

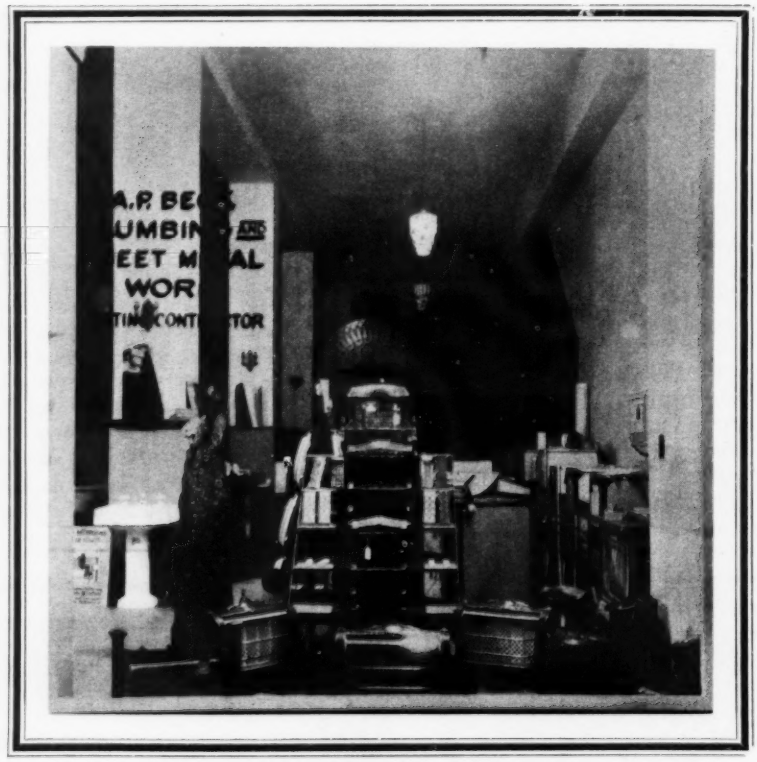
"The heavier units, such as gas-fired boilers, the blower heating units, as well as the actual gas-fired boiler installation, can best be shown in the rear of the large showroom. One of the reasons for this arrangement is that the heavy units are too cumbersome to display in the front end of the store. Furthermore, a demonstration can be most effectively arranged in the rear of the store, where there is more privacy, with less interruptions owing to people coming and going from the store. Another desirable feature is the proximity of the displays to the office, so that whenever a demonstration is held the necessary data can be gone into without delay or inconvenience to the customer.

"Photographs play an important part in the sale of gas-fired boilers. These show in detail the various operating features of the product. As they are placed along the wall near enough to the product displayed, all questions can be answered effectively by referring the customer to the cut-out details in the photographs. For illustration, one of the important mechanical features in a gas-fired boiler that we handle is the explosion-proof device. When actually demonstrating the product we can call attention to the valve feature which makes this possible. But as to how this works mechanically we must refer the customer to the photograph for a detailed, and effective, explanation.

"Directly behind the office, in the space that separates the shop from the showroom we have installed the gas-fired boiler which heats our own plant and serves also for demonstration purposes. Connected up with this boiler are two tanks, of twenty and thirty gallon capacity, which serve for the store and for the living quarters above that. As this installation was made on the floor level we have a decided advantage. It is not necessary to take the customer to a basement for the demonstration. We regard it as a store display in every sense of the word, and it has helped us to sell many gas-fired boiler installations.

"In addition to this we have fitted up two unit heaters on the wall space directly above the office in rear of the store. Behind this wall space is the mezzanine. These units are connected up with our gas-fired boiler so that they always operate for demonstration purposes. One of these units has been installed in the wall space to the left, almost directly above the display of a gas-fired boiler. It blows warm air in that direction, thereby attracting the attention of those who are inspecting the boiler. Naturally they begin to ask questions about the product, which gives us an opportunity to explain its features of operation and general usefulness. Practically everyone who enters the store and ventures to the rear not only sees the unit heaters above but gets a first-hand demonstration of its operating efficiency. Many of the garage and other industrial installations have been effected through such demonstrations.

"Our policy is to handle none but standard makes of gas-fired boilers and other heating equipment for home and industrial uses. However, we concentrate on two



Windows are given over to carefully-planned displays of gas appliances

types of gas-fired boilers, representing the extremes in price ranges. Usually one of them will interest the prospect, if it is properly demonstrated to him, so there is no need to show too many lines.

Selecting Prospects

"We realize that we cannot sell to everybody in town, so we make an effort to develop as many prospects as possible of the type that we can cultivate, and to make them form the habit of visiting us regularly. Three methods are used to attract them, newspaper advertising, direct-by-mail, and novelty advertising. All of our newspaper advertising features principally pictures of the various products shown in our store. In addition, we stuff all outgoing mail with manufacturers' circulars and other printed matter. The same material is liberally displayed throughout the store near the respective displays. The sort of novelty advertising that we do is effective but not too costly. Thus, we give away comparatively inexpensive items from time to time, taking care, however, that these items should be directly related to the products that we sell.

This beautiful building houses the Beck organization

"We never advertise these novelties nor do we give them away to everyone who comes along. We have found it more economical to buy a supply of about five hundred of the particular item and to hand them out to store visitors without any warning. Our regular customers have learned to expect these gifts and they have formed the habit of calling for them at certain times during the year. I would rather give away five hundred under such conditions than five thousand to everyone who happens to pass the store. The novelties make excellent Christmas presents. Furthermore, many of our regular customers make a practice of referring our place to their friends so that they, too, could secure the novelties, and the latter have an opportunity to become acquainted with our products and service.

"Being pioneers in the plumbing business in this community we naturally stress the best of installation serv-

(Continued on Page 70)

AUTOMATIC HEAT SECTION

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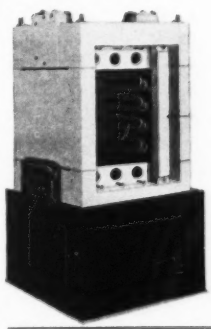

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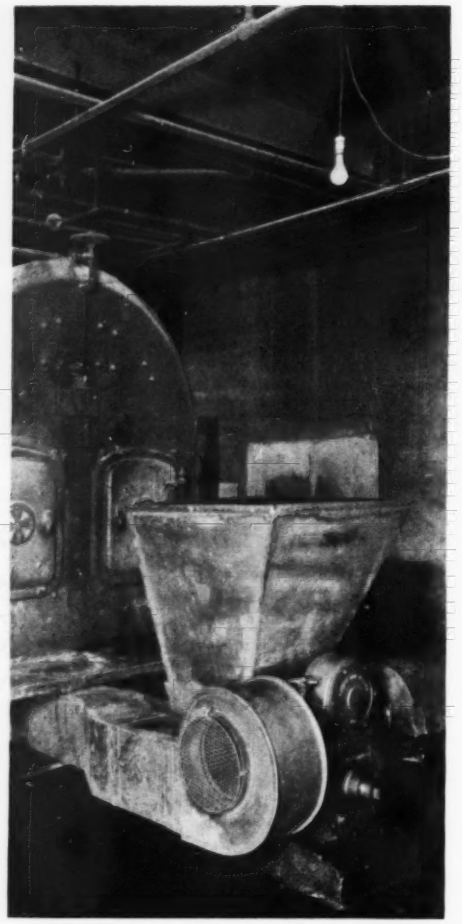


"A study of coal fuel will pay any heating contractor, not only in helping to make the equipment he installs perform in a satisfactory manner but in the satisfaction of the mastery of a difficult subject"

Pointers on Combustion in Domestic Systems of Heating . . .

By L. W. MILLIS

COMBUSTION in any kind of heater or, under any circumstance, is a hydra-headed subject involving chimney construction, draft, characteristics of heaters, and a vast array of fuels. We are also confronted with plenty of theory modified by well tested practice. I presume that when you hear the word "combustion," you think of chemistry, flame temperatures, and rates of flame propagation, and a lot of other similar things. The first thing I think of is draft.

Draft is an essential thing in any type of heater. It may therefore be well to spend a moment in that field as a preliminary to our main subject.

Draft, as you know, is the pull upward of a confined column of air or gas that is lighter than the air surrounding the chimney which confines the lighter column. No stove, no boiler, no furnace, no cigarette, has a draft. Something must pull the air through the combustible material to support combustion. I have convinced more people of this fact by reference to the cigarette than I have to the heaters. Even the ladies get that.

A poorly built chimney will, of course, create less draft than a good one, but we will not discuss the quality of the chimney itself. It is difficult, if not impossible, to discuss draft without talking in terms of "inches of water." Now, don't panic.

It is no more mysterious than a B.t.u. and you lived through that all right. A warm chimney will have enough pull to raise the water in one leg of a U shaped tube to a certain height.

If you can estimate the pull of a chimney and can also approximate the pull required by the heater, you can approximate how nearly they fit each other.

The following gives a method of determining, approximately, the draft in inches of water required by heaters:

Let "A" equal the depth of fuel in the fire pot, expressed in inches.

Let "B" equal the rate of combustion (lb. of coal burned per hour per sq. ft. of grate).

Let "C" equal length of fire travel from top of fuel bed to smoke collar of heater.

Let "D" equal number of right angle turns between fuel bed and smoke collar.

THEN—

$A \times B \times .001$
Plus $C \times .001$ } Equals
Plus $D \times .03$

Draft required as shown on gauge expressed in inches of water.

Fig. 1—This shows the usual method of piling large quantities of coal into a boiler when hand firing is employed. It is wrong

Let us suppose a boiler with fire pot 12 in. deep and that it is required to burn 5 lb. of coal per sq. ft. of grate. Also suppose that it has 8 ft. of fire travel from top of fuel to the smoke collar of the boiler and that there are three right angle turns within the boiler.

Then—

A = 12
B = 5
C = 8
D = 3

Substituting these figures for letters in the formula we have

$$12 \times 5 \times .001 = .060$$
$$8 \times .001 = .008$$
$$3 \times .03 = .090$$

Total inches of water required .158

The boiler therefore, requires a chimney draft of not less than .158. The smoke pipe will require not less than .032 bringing, the chimney requirements to a total of .19 inches of water.

A little later I will show you how to estimate the draft in a chimney. Let us for the moment suppose the chimney has, at any reasonable temperature, only .15 inches of draft. You know you are headed for continuous trouble if you sell the job on that basis. But sales are wanted, so let us figure again.

Suppose you figure a job with a grate big enough to require a fire bed only 7 in. deep and burning at a rate of 3 lb. per sq. ft. of grate.

Then—

$$7 \times 3 \times .001 = .021$$
$$8 \times .001 = .008$$
$$3 \times .03 = .090$$

Inches in draft required .119
Add smoke pipe as before .032

Total inches water required .151

You can feel certain the larger heater will perform properly with that chimney.

Of course, you should have a draft gauge. But suppose you have none—your problem always is to know what draft you may expect from any particular chimney.

Table No. 1 is compiled from various authorities. It is necessary to assume some temperature on which to base calculations. Many flue temperature tables fail to state whether flue temperature is at collar or somewhere between that and top of chimney. Let us suppose a chimney 30 ft. high and let us suppose it is 50 deg. Fahr. outside, and the collar temperature is 300 deg. Fahr.—then, .00053 × 30 = .0159 inches of draft.

If it is zero outside, it would be .00216 × 30 = .0648 inches. If the chimney gradually warmed up to say, about 400 deg. Fahr., and the collar temperature to 900 deg. Fahr., then the draft would equal .216 in. and would be ample, but it costs money to throw smoke out at such temperatures, and it takes a long, long time to bring a chimney up to such high temperatures. Have you ever had a case where the people are willing to wait until 12 o'clock to get heat.

Table No. 2 illustrates how to use the draft formula in connection with table No. 1 and should be helpful.

The trend toward bungalows with low chimneys has caused so much trouble that I have compiled table No. 2 as a sort of example. By such means you can often determine that there are houses containing chimneys in which it is better to let your competitor make a sale, which can result only in a dissatisfied customer.

I think you will find draft requirements to be somewhere near—

	.04 for gas
Forced air oil burners	.04 to .06
Gravity oil burners	.08 to .12
Coal	.12 to .20 or more.

Fuels

All the various solid fuels present various combustion problems. I do not believe we can understand combus-

Table No. 1

Flue Temp. at Collar Degrees	Average Temp. in Chimney Degrees	Draft per Foot of Flue Height in Inches of Water — Outside Temperature			
		At 0 Deg.	At 30 deg.	At 50 Deg.	At 70 Deg.
300	100	.00216	.00114	.00053	.00009
450	200	.....	.00333	.00272	.....
500	200	.00435	.00345	.00280	.00255
650	300	.00580	.00494	.00433	.00380
700	300	.00596	.00500	.00450	.00385
800	400	.00680	.00600	.00540	.00500
850	400	.00700	.00618	.00557	.00515
900	400	.00720	.00630	.00570	.00525

AUTOMATIC HEAT SECTION

tion of such fuels without some fixed theory as a foundation. The generally accepted theory of coal is that it is of vegetable origin. It contains nearly everything contained in vegetation.

Plants thrive on and store up carbon from the very small amount of carbon dioxide in the air. The modern magician, the chemist, finds in coal, carbon in several forms, also tar.

In the tar, he finds the things contained in plant life and convertible into explosives, medicines, baking powder, dyes, perfumes, lycopodium, ammonia, creosote, sugar, starch, cellulose, and many other things contained in plants.

Combustion authorities will tell you that soft coal is composed of fixed carbon, and bitumen and that the bitumen when heated, breaks down into gases, oils and tars.

These latter, they call volatile matter. That is, where the trouble begins. If all of them ignited at the same temperature, the fuel man's life might be one of joy, but they ignite at all sorts of temperatures.

Fire crackers contain much charcoal similar to that found in coal. You have often heard in burning coal the same sound that is produced by exploding small fire crackers. Gun powder is really slow burning compared with some of the stuff contained in coal.

Of course, you understand that an explosion is only accelerated combustion. The sound from burning little cellulose buttons is much sharper than from the gun powder crackers.

That indicates how much faster it burns than gun powder. Even that is slow burning compared with T. N. T., the base of which comes from coal.

Undoubtedly you have noticed how very fast some of the stuff that makes up the volatile matter in coal burns.

They ignite at low temperatures and burn very rapidly, but your customer wants to regulate them so they burn in an eight-hour firing period. As a simple experiment, to an old-fashioned clay tobacco pipe, put soft coal in it instead of the usual weed. Seal it over the top. Apply heat to it. You will see moisture coming from the stem. Next, you will see gas coming from the stem. Volatile matter goes to gas before it ignites. Hold a lighted match to it and you can light it.

Then hold a cold plate close to the flame. It chills the flame. The fire does a right about, decomposes and turns back to carbon. We call it soot.

Table No. 2

Sq. Ft. of Grate in Boiler	Lb. Coal at 5 lb. per hr.	Inches Draft req'd at 5 lb. rate	Lb. Coal at 3 lb. per hr.	Inches Draft req'd at 3 lb. per hr.	Height of Chimney above Grate: 26 Ft.	30 Ft.	40 Ft.
					Draft of Chimney in Inches of Water at an assumed temp. of 300 degrees: .155	.179	.238
					Minimum Inside Size of Chimney		
1.22	6.1	.177	3.6	.151	8x8	8x8	.....
1.97	9.8	.189	5.9	.154	8x8	8x8	.....
2.64	13.2	.192	8.	.158	.....	8x8	9x12
3.17	15.8	.195	9.5	.162	.....	8x8	9x12

Table No. 3

Kind of Coal	Per Cent Vol.	Per Cent Fix. Carb.	Per Cent Comb. Matter	Per Cent Moist	Per Cent Ash	Per Cent Sulp.	Heat Value in B.t.u. per lb. of: Combustible	Coal
Coke (coal)..	.....	88	89	.....	9	1	15000	13350
Penn Anthracite	3	88	91	2	6	1	14500	13195
Ark. Anthracite	8	22	90	3	6	1	14600	13140
Semi-Anthracite	18	70	88	3	7	1.5	14500	12760
Soft.....	46	40	86	3	7	4	13500	11610
Soft.....	35	38	73	8	16	5	12000	8760
Lignite.....	51	10	61	30	-	1	13000	7930

On the inside of the bowl, you will find the fixed carbon and the ash. You may call it coke.

The fixed carbon ignites at around 1,000 deg. Fahr., while some of the carbons and other matter ignite at around 700 deg. Fahr., and a small portion at still lower temperatures.

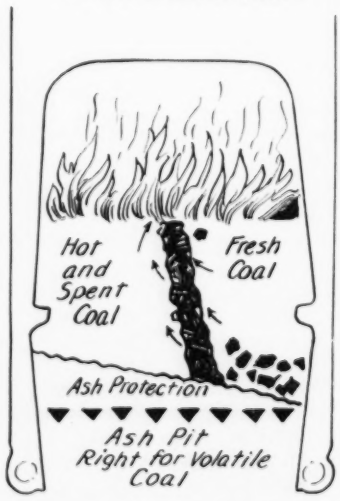
You can easily imagine that when the fire is going strong enough to kindle the fixed carbons, that all the lower temperature stuff is burning at a furious rate. All that stuff that you burned in less than one-tenth of a second will be doing its best to live up to its ideals.

The heat value of the combustible in a pound of nearly any kind of coal does not vary greatly. But the heat value per pound of coal varies widely.

The figures in Table No. 3 show approximately the heat value of various classes of coal.

If an atom of carbon at a high temperature comes in contact with a single atom of oxygen, they will unite and in doing

Fig. 2—This sketch indicates one method of adding fuel to a hand fired fuel bed which is ideally correct but difficult to attain



so, will evolve heat. You call the product carbon monoxide gas, or CO. I believe chemists call this a monogamistic marriage.

If the carbon monoxide, still hot, comes in contact with another atom of oxygen, the lusty carbon annexes in polygamous marriage, the new oxygen atom. In this new union, more heat is evolved amounting to nearly 2½ times the first batch of heat. The product is called carbon dioxide and is written CO2. The heat evolved in the two steps in a pound of good combustible equals about 14,500 B.t.u. and in a pound of coal from 11,000 to 13,300 B.t.u.

However, if the carbon dioxide, while hot, comes in contact with more hot carbon and no other oxygen is present, one of the fickle oxygen jades will desert her first carbon lover and unite with the new carbon home-wrecker. I have sometimes wondered whether it was the first or second mate that deserted. At my age, I am inclined to believe it was the second. However, it interests me more to know that this unholy action absorbs some of the heat. The original CO2 is reduced to CO, although there will then be two of the CO products.

Table No. 4

Cu. Ft. of Air Required Per Lb. of Coal Burned.

Kind	Per Cent Vol.	Per Cent F. C.	Per Cent Comb.	Cu. Ft. Air for Vol. in 1 Lb. Coal	Cu. Ft. Air for F. C. in 1 Lb. Coal	Total Cu. Ft. Air	Plus 35% Excess Air	Variation Cu. Ft. per Lb. Theory	Variation Cu. Ft. per Lb. 35% Excess
Penn. Anthracite	3	88	91	7.0	141	148	200	190	256
Semi-Anth. (Ark.)	8	82	90	19.	131	150	202	219	295
Semi-Bit. (Ark.)	18	70	88	42.	112	154	208	226	306
Bitum.	46	40	86	106.0	64	172	232	200	270
Bitum.	35	38	73	81.	71	152	206	197	264

The heat thus generated will equal about 8,760 B.t.u. instead of 14,500.

Organized society often loses by unholy alliances. If the relation between carbon and other combustibles, with the oxygen, could in practice be exactly regulated, it would be possible to get exact combustion results.

But, unfortunately, the oxygen available is mixed with nitrogen which does not burn. In practice, it is impossible to mix the combustible atoms with the oxygen atoms in the exact manner that would evolve the most heat.

You can imagine then, that any sort of fire would produce products of combustion all mixed up and consisting of carbon dioxide and carbon monoxide, as well as some oxygen and some carbon and other combustibles that did not find a chance to unite. In addition, they carry along with them, a tremendous quantity of nitrogen, which as you know, is a component part of the air, but does not burn.

Carbon is expensive and oxygen in the air is free. Therefore, it is advisable to admit some air in excess of the theoretical amount required. The correct amount of excess and the manner of admission are matters of much discussion, much experimentation and much dogma. However, everybody admits that there must be considerable space above the fuel in order that the flaming

AUTOMATIC HEAT SECTION

DO YOU KNOW?

That the precision observed in the manufacture of a high grade clock or fine watch by no means transcends that adhered to in the manufacture of Leland motors—

That the cradle mounted Leland motor is a popular choice for use on stokers, oil burners, refrigerators and other appliances where extreme quietness in operation is paramount—

Simple but highly dependable brush-lifting mechanism to eliminate brush noise and wear—

Rubber impregnated spring mounting which keeps vibration from being transmitted from the frame structure to the base—

Generous bearing areas coupled with foolproof, self-filtering lubrication to prevent bearing wear and noise

Other features contributing to the quietness of this motor fully covered in a special bulletin.

Consider this cradle-mounted unit for stoker, oil burner, and other applications where a quiet motor is required. Bulletin No. 28.

The Leland Electric Co.
Dayton, Ohio » » U. S. A.

Leland Motors

AUTOMATIC HEAT SECTION

products may mingle and thus reduce to a minimum unburned combustible. It also requires a definite time for flame propagation. There must be sufficient space or a distance for the act to be completed.

The more volatile matter there is in a certain coal, the more air it will require. The volatile matter is made up of items that vary in different coals. Consequently, the amount of air required to burn the volatiles varies widely.

Table No. 4 is a composite of several authorities, and

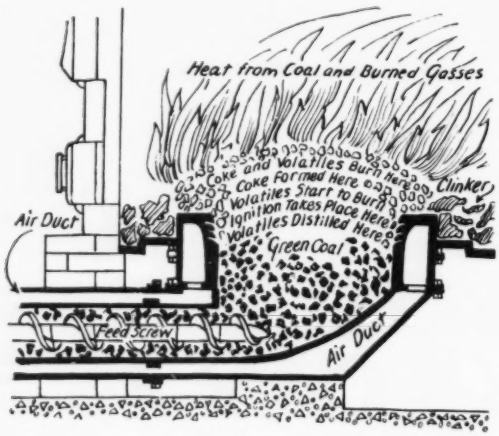


Fig. 3—Here is one type of underfeed firing with a stoker. In this case note that the fresh fuel is at the bottom of the hot fuel bed

not well related, but after a fashion, will serve to indicate the difficulty of making statements about air required for theoretical combustion, and what must be used in practice.

The table is deceptive, because the total combustible in high volatile coal is smaller than in low volatile coal.

The two right hand columns are built up from coal just a little different to those shown, and indicates the range of air supply needed.

I will not take your time to explain why 15 per cent carbon dioxide in coal smoke or why 11.7 per cent carbon dioxide in gas fumes is regarded as a standard of practical perfection. Neither will I take up much time

Table No. 5

Per Cent CO_2	Per Cent Excess Air	Per Cent Preventable Loss		(Stack 500 Deg. Fahr.)
		Hays	Volbrecht	
15	38.	0.0	0.0	
14	47.8	0.80	0. 8	
12	72.5	2.84	2.89	
10	107.	5.69	5.74	
8	158.7	9.66	10.08	
6	245.	17.09	17.25	
4	417.	31.28	31.62	
2	935.	74.	74.70	

on the entire CO2 problem except to try to indicate important sides of the question.

The 15 per cent standard includes excess air of 35 per cent above theoretical perfection. Further dilution will, of course, reduce the percentage to lower than 15 per cent.

The additional air above 15 per cent must be heated before passing to the chimney. This gives a lower stack temperature, but the heat so used, could have been better applied to heating surfaces of the heater rather than to increasing the volume of the flue gases.

In such an instance, the combustion of the carbon might be quite complete, having very little CO but allowing a large volume of excess air carrying its worse than useless load of nitrogen to weaken the effectiveness of the fire.

On the other hand, the quantity of air might be correct and yet the combustion be incomplete, resulting in considerable CO—a reduction of CO2.

Without knowledge of the complete composition of the flue gases such as the percentage of CO2, CO and free oxygen, any statement of CO2 and stack temperature, in my humble judgment, has little value. However, if the CO2 is low, it is an index that there is a chance for improvement.

But just what is needed is another story.

Low stack temperature may be produced by undue dilution (excess air) or ample heating surface to absorb the heat from the products of combustion.

Table No. 5 is copied from the work of recognized authorities. It gives the theoretical excess air presumed to be present when certain percentage of CO2 are found in the flue gases from coal. Also, it shows the preventable percentage of heat lost.

Let us see if any of this can be used in our daily pursuit of happiness and dollars.

Let us suppose your customer complains the heater you installed has no draft and he has no heat. In a few cases, the coal man is able to locate the trouble. It may be in the chimney or the chimney connections. It may be the coal or in the manner in which it is handled. There is little chance, barring size, that there is anything wrong with the heater itself. Nevertheless, he is your dissatisfied customer.

Of course, most of you are familiar enough with such troubles and the remedies. Nearly every man thinks he knows something about burning coal. I am no exception, and will take this opportunity to show you how I have solved literally hundreds of cases where handling the fires was the source of trouble.

We have seen that nearly all the volatile matter in the coal gasifies and ignites at temperatures below the ignition point of the fixed carbon. Some method of burning these various combustibles in parallel action and covering somewhere near the same period of time is desirable.

The sketch in Fig. 1 shows the usual method of piling coal into a heater. The partly burned coal is spread out and the fresh coal spread over it. The heat under the fresh coal starts gasification. It is manifest that this occurs over the entire surface. If a hot fire is not desired, the draft in the ash pit door is closed, but the heat necessary to keep the fixed carbon lighted as sufficient to liberate those portions of the volatile matter that start at low temperatures. If only a little more oxygen is passing into the fire than is required to maintain the fire, then CO2 will be formed in the lower part of the fire bed. As it passes up through the fresh coal, the CO2 picks up carbon and is reduced to two parts of CO and loses heat.

It is quite customary to admit air through the openings in the feed door. It is hoped, at least, that the air so admitted, will bring additional oxygen to complete

the combustion and thus, decrease the color of the smoke.

When the smoke is viewed from the chimney top and shows up lighter in color, it is assumed that it has improved the combustion.

Too often the air through feed door serves only to dilute the products of combustion or partial combustion and the color of the diluted out-pouring of the chimney top fools the observer.

Complete combustion is brought about by thorough mixing of the elements at high temperatures. In other words, at the right temperature, at the right time, and in the right place. This can not be accomplished under the fuel conditions just described.

If the fire pot we are using is 20 in. in diameter, there are 63 linear inches of (circumference) trying to burn and of necessity at low temperature if only a moderate fire is desired. Also, there is 314 sq. in. of surface area trying to burn. Low temperature fires are wasteful.

The other sketch Fig. 2 shows another method of putting the coal in the pot. The partly burned, though hot, fixed carbon remaining in the pot is pushed to one side. Enough ashes should be left on grates to protect them from the fire and the fresh coal is put on the empty side of the pot.

The vertical line in the center of the sketch is more ideal than is really attainable. The gaseous or volatile matter starts action along this line. It is possible to burn a small quantity at such high temperatures and with such good mixtures that a nearer perfect combustion is secured, although a smaller section of the fire is burning. The length of the fire is 20 in. instead of 63.

Most of the liberated gas will find it easier to go sidewise toward the high temperature coals than upward through the green coal. Much of it passes through fixed carbon burning at temperatures well above 1,000 deg. Fahr. instead of 800 or 900 deg. Fahr.

I might say that the various elements which ignite at widely varying temperatures and burn at different rates are apparently burning at nearly the same rate instead of burning the volatile matter rapidly and leaving the fixed carbon to burn by itself.

It is, perhaps, illustrative to say that the various elements burn in parallel and in harmony. We should also remember that a fire under 1,400 deg. Fahr. collectively absorbs heat while above that temperature it evolves heat. In certain types of under-feed stokers (see Fig. 3), you will note that the green coal comes up through the fire. I have marked imaginary zones in which, step by step, the process of combustion takes place in the manner that I have been trying to set up as being desirable.

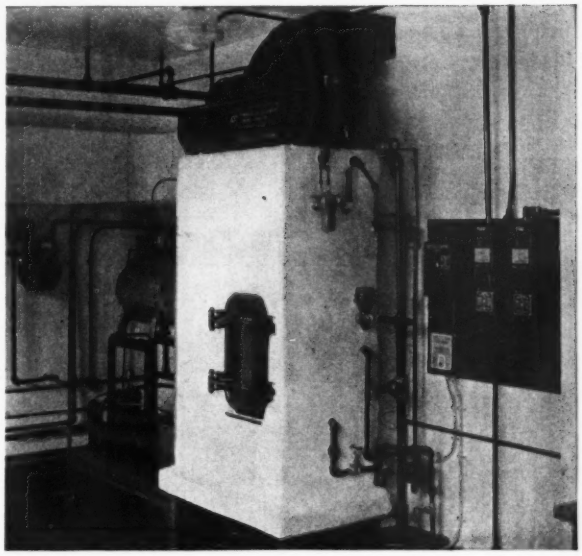
The amount of air used to bring about complete combustion is more than the accepted formula in order that oxygen may be delivered clear into the center of the bed of fuel.

Theoretically, this gives rather low combustion values. However, the quality of coal bought at low prices together with labor saved, usually result in fuel savings.

The thing that I want to impress on you is that the vertical line in the fire pot I previously showed you, produces much the same result as indicated by the horizontal lines in the stoker and burns the fixed carbon and the volatile matter in parallel lines as to time and space.

One essential difference is that the vertical line method

AUTOMATIC HEAT SECTION



AIR CONDITIONING
the Modern Way

THE Clarage Unit Air Conditioner shown above is maintaining a constant temperature and humidity in the laboratory of a large manufacturer of chemicals. It was sold on the basis of guaranteed results, and has proven entirely satisfactory.

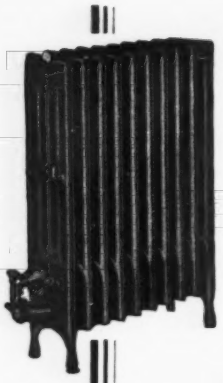
Clarage Conditioners will cool, humidify or dehumidify as required. They can be successfully applied in the printing and allied industries, in paper, textile mills, etc., in chemical, candy, food and process plants, in storerooms, bakeries, and in tobacco factories; in fact, throughout industry wherever air conditioning is necessary and desirable.

This equipment, as compared with older types of bulky, expensive apparatus, offers greater flexibility, closer and easier control, eliminates a costly distribution system, eliminates costly plant alterations, and invariably produces equal or better results at a decided saving.

If you have any type of industrial air conditioning problem, very definitely will it pay you to consult with our engineers. Write for Bulletin 76. CLARAGE FAN COMPANY, Kalamazoo, Michigan. Sales Engineering Offices in Principal Cities.

CLARAGE
UNIT AIR CONDITIONERS

AUTOMATIC HEAT SECTION



AUTOMATIC
Gas Steam
RADIATORS

✦

Automatic Gas Steam Radiators displayed and merchandised by you extend your heating sales operation to those prospects in need of some heat but who cannot afford a complete system.

Automatic Gas Steam Radiators put heat where it is needed as part of the regular heating plant or as an independent unit.

Write for detailed information showing the many sales possibilities.

AUTOMATIC GAS-STEAM RADIATOR CO.
Brushton and Thomas Sts. PITTSBURGH, PA.

Are You Selling
Trouble-Free Heating Service
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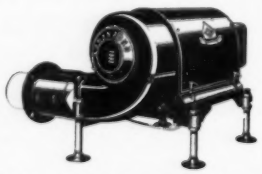
Oil Burners?



IT SOMETIMES happens that a dealer permits his better judgment to be sidetracked by the lure of greater profits. He takes on the so-and-so oil burner and earns the profits—only to see them dissipated by repeated service calls.

The Branford Automatic Oil Burner, made by The Malleable Iron Fittings Company of Branford, Connecticut (founded in 1864), offers and delivers even, dependable, *trouble-free* heating service month in and month out, year in and year out.

Holders of the BRANFORD franchise operate with complete confidence in their product, for they know that this Company stands squarely in back of every Branford Oil Burner sold, and back of the Company is a 67-year old reputation of fair dealing and dependable products.

We are interested in hearing from responsible dealers.

THE MALLEABLE IRON FITTINGS CO.
Dept. 40 :: Branford, Conn.

BRANFORD
OIL BURNER

allows the ashes to settle downward into a comparatively cool zone and makes very little clinker, even in the worst of coal. In stoker systems, the ashes are pushed up into the hottest part of the fire, and all the ashes come out in the form of clinker. I have talked mostly in general terms of coal and most of the data refers to high volatile soft coal.

I have observed that anyone who understands the basic principles of soft coal can very easily burn any other kind of fuel.

I stated in opening, that combustion is a hydra-headed affair.

A study of coal fuel will pay heating contractors a large dividend, not only in helping to make the equipment they sell perform in a satisfactory manner, but in the satisfaction of the mastery of a difficult subject.

Complete Displays Boost Gas-Fired Boiler Sales

(Continued from Page 63)

ice. We are able to do so because all of our service men have been with this firm for many years and they are personally acquainted with the people in town. These service men do the bulk of selling owing to their intimate contact with our customers and prospects, and they do this job in a friendly sort of way, and not by high pressure methods.

"In conducting our installations we follow the practice of making up an actual drawing of the details and submitting it to the customer for his inspection and approval. Practically all of them appreciate this thoroughness. However, when this plan is followed it is best not to go into too much detail or to go into lengthy discussions on purely technical matters. Such tend to add to the confusion and serve no real constructive purpose."

Oil Heat in a Small Central Plant

(Continued from Page 59)

pleted, but the gate buildings are finished and in use. The greenhouse is filled with growing plants, as shown in Fig. 5, there is a family in each of the cottages, and cars are in the garage. The south, or boiler room basement provides ample space for the family's laundry work and storage of trunks and surplus furniture. The compactness and good appearance of the installation are a credit to the contractors who were responsible for the work. The L. H. Prentice Company of Chicago were the heating contractors on the job. H. L. Clute, also of Chicago, was the mechanical engineer.

How Soot Is Prevented

Volatiles, which contain from 20 to 45 per cent of the heating value of coal, are distilled off on the grate, and these gases must be thoroughly mixed with the proper amount of air and burned close to the fuel bed before they have an opportunity to break down into their component parts and form soot.

"The Next Improvement We Make—"

"Without question, the next improvement we make in our home will be the addition of automatic heat. What kind? I really don't know. Oil burners have a lot in their favor, stokers have come right up to the fore and natural gas is putting gas heat right within our reach.

"I'll talk it over with Mr. Jones. He's the dealer who put the heating system in here. Whatever he says will be the thing. At any rate, you can bet I'm not going to go through another winter of inconvenience and uncertainty."

That's the actual statement of a Chicago home owner. It's typical of what hundreds of thousands all over the country would say if you asked them the question, "What improvement are you going to make next in your home?"

Naturally, when a home owner decides to install automatic heat, he wants to know all about it. He wants to know that when it goes in, it will serve right.

He wants a good company behind it, but more than that—far more than that—he wants a good dealer behind it. He wants a dealer who is part and parcel of his community, who is established there, ready to answer questions in a minute or give advice when it is needed.

The home owner wants to buy automatic heat just as he wants to buy an automobile or engage the services of a doctor. He wants to know that the man, whether doctor, automobile dealer or heating dealer, "knows his stuff."

In the case of the heating dealer, there is no question about his ability, his standing as a business man, and his knowledge.

The leading heating dealers of the country depend upon the pages of AUTOMATIC HEAT in DOMESTIC ENGINEERING to give them their information. They read it regularly.

AUTOMATIC HEAT

in

Domestic Engineering

1900 Prairie Avenue ✦ Chicago, Ill.

THE TYPE KC . . . motor with capacitor-transformer unit. Also available with separate capacitor unit. Look into this drive

THE TYPE KH . . . resistance split-phase motor equally dependable, efficient, and long-lived. Ask about it

RESOLVED:

I will use only dependable, modern motors

MAKE that resolution now; give your oil burner the sound value of a General Electric motor.

The drives that bear the G-E monogram have performance characteristics which match definitely the needs of modern oil burners. And they will give your product that additional acceptance already accorded G-E equipment everywhere.

Call in a G-E motor specialist; you'll find him located conveniently near you. His advice will be of value.

JOIN THE "G-E CIRCLE —SUNDAYS AT 5:30 P. M. E. S. T. ON N. B. C. NETWORK OF 54 STATIONS—WEEK-DAYS (EXCEPT SATURDAY) AT NOON

210-175

GENERAL ELECTRIC

SALES AND ENGINEERING SERVICE IN PRINCIPAL CITIES

About Folks You Know

Supply News

What's Doing In Business

For Manufacturers, Wholesalers and Salesmen

Eastern Supply Association to Meet March 9 and 10

The Eastern Supply Association will hold its Spring meeting at the Hotel Astor, New York City, March 9 and 10, 1932. At this two-day meeting, direct to consumer selling, wholesalers' tie-up with manufacturers' advertising, and many other subjects of interest will be discussed.

◆

Acquires Manufacturing Rights on Temperature Control Device

Announcement has just been made by W. S. Killam, general manager of the Capitol Brass division of the Bohn Aluminum & Brass Corp., Detroit, Mich., of the final acquisition by that concern of all manufacturing and selling rights in the valve temperature control formerly made by the Conco Temperature Control Co.

◆

Silent Glow Oil Burner Corp. Pays 100 Per Cent Extra Dividend

The Silent Glow Oil Burner Corp., Hartford, Conn., at a meeting of directors recently voted an extra dividend of 100 per cent in addition to the regular dividend of 2½ per cent on its entire issue. During the year Silent Glow Oil Burner Corp. increased its sales to $1,400,000, an 80 per cent gain over 1929, the previous record year. The capital structure is composed of $55,000 of 7 per cent preferred at $25 par, and $157,000 common at $25 par. The 100 per cent dividend will increase the total to $424,000.

◆

Central Supply Association's Committees Are Announced

The executive committee of the Central Supply Association, which is appointed by the zone organization throughout the territory covered by the association, has been announced as follows:

Ohio—F. W. Terwilliger, American Plumbers Supply Co., Toledo; R. Clay Van Voorhis, Universal Supply Co., Newark.

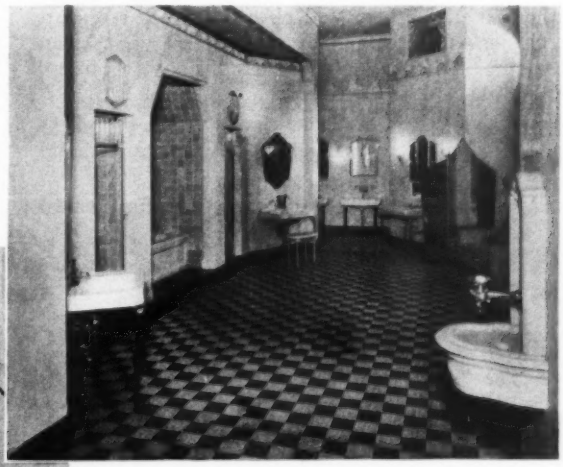
Indiana and Kentucky—C. C. Weiland, Central Supply Co., Indianapolis; R. E. Bower, The P. & H. Supply Co., Fort Wayne.

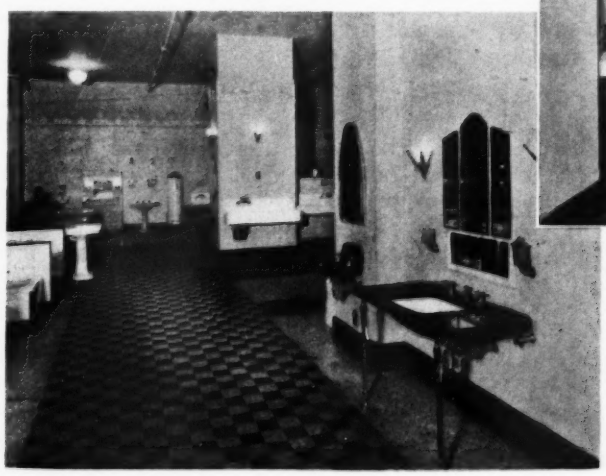
Michigan—Edwin M. Sterner, Edwin Sterner Co., Flint. (Vacancy.)

Northern Illinois—J. F. Carroll, Standard Sanitary Mfg. Co., Chicago; Harry Leach, Rockford Plumbing Supply Co., Rockford.

Wisconsin—B. Hoffmann, Jr., B. Hoffmann Mfg. Co.,

Below and at the right are two interior views of the beautiful new showroom of the U. S. Supply Co., located at 17th and Broadway, Kansas City, Mo.





Milwaukee; Roy Cordes, Cordes Supply Co., Milwaukee.

Minnesota—J. G. Ordway, Crane Co., St. Paul; E. H. Roberts, Roberts-Hamilton Co., Minneapolis.

Iowa—C. W. Helstrom, Globe Machinery & Supply Co., Des Moines; J. W. Winterbottom, Winterbottom Supply Co., Waterloo.

Western Missouri and Kansas—E. H. Graham, Crane Co., Kansas City; H. B. Holihan, Missouri Water & Steam Supply Co., St. Joseph.

Eastern Missouri and Southern Illinois—J. C. McEwen, N. O. Nelson Mfg. Co., St. Louis; T. R. Taylor, Crane Co., St. Louis.

Nebraska—W. T. Cotter, Crane Co., Omaha; H. L. Dempster, Dempster Mfg. Co., Beatrice.

Colorado and Utah—L. B. Hampton, Crane Co., Salt Lake City; Clarence Nelson, Peerless-Utah Co., Salt Lake City.

Oklahoma—D. W. Holmes, Plumbers Supply Co., Tulsa; Jos. Mideke, Jr., Mideke Supply Co., Oklahoma City.

Texas—C. A. Dunlay, Dunlay-Armand Co., Houston; C. S. Jahns, Jahns Supply Co., Fort Worth.

Louisiana—Louis L. Warden, Standard Sanitary Mfg. Co., New Orleans; H. E. Walters, Crane Co., New Orleans.

Tennessee—R. T. Clarkson, R. T. Clarkson Co., Memphis; W. N. Billings, W. A. Case & Son Mfg. Co., Nashville.

Alabama, Georgia and Florida—J. G. Johns, Crane Co., Birmingham. (Vacancy.)

Pennsylvania—C. S. Pitkin, Crane Co., Pittsburgh; James Bailey, Bailey-Farrell Mfg. Co., Pittsburgh.

To carry on the association's work for the current year compatible with the new policies of the association, President W. J. Spillane has appointed the following committees:

By-Laws—Wm. Byrd (Soil Pipe), Geo. Hoffmann (Earthenware), Herbert V. Kohler (Enameled Ware), J. R. Steneck (Valves and Fittings), Harry Speakman (Brass), F. S. Kaulback, J. F. Carroll, F. W. Swanson, Chas. Wilson and J. C. McEwen.

Membership—Chas. Wilson, chairman, H. W. Seymour, Jack Cooper, E. I. Leighton, Irving Stafford and H. C. Yelton.

Trade Relations—W. J. Spillane, Geo. Hoffmann and Wm. B. Talbott.

Merchandising—H. O. Nelson, chairman, F. S. Kaulback, Wm. B. Talbott, Geo. Hoffmann, C. V. Haines, C. A. Dunlay and E. H. Blywise.

Martin Weil has been named as the association's representative to the Plumbing and Heating Industries Bureau. Warner Kiefaber has been appointed national councillor.

◆

Insulations, Inc., Is Organized in Cambridge, Mass.

Announcement is made of the formation of a new firm to be known as Insulations, Inc., which will contract for hot and cold insulations. Harold B. Buse, formerly general sales manager of Nightingale & Childs Co., Cambridge, Mass., is president of the new company and George J. Hesslein, also formerly with Nightingale & Childs Co., is treasurer. Headquarters have been established at 515 Massachusetts avenue, Cambridge.

Will Represent Central Brass Mfg. Co.

The Central Brass Mfg. Co., Cleveland, Ohio, has established office, showroom and warehouse facilities with George H. Steiner, Inc., 222 East 38th street, New York City, for servicing the metropolitan district. Field representatives will be George H. Steiner and Samuel C. Marx, both of whom have been active in the New York market for many years. The new arrangement became effective on January 1.

◆

J. B. Wise Appoints Export Representatives

J. B. Wise, Inc., Watertown, N. Y., has announced the appointment of F. & J. Meyer, 115 Broad street, New York, N. Y., as its export representatives.

◆

Ideal Furnace Company Opens New Branch Office and Warehouse in New York

The Ideal Furnace Co., of Detroit, Mich., has opened a branch office in the Empire State building, New York City, and warehouses at Newark and Long Island City.

Dwight Edwards, who comes from the company's general office in Detroit, has been appointed supervisor of sales for territory east of Pittsburgh. J. H. Cornell, formerly with the Hoffman Specialty Co. and later sales manager of Abendroth Brothers, has been placed in charge of the New York branch.

◆

American Foundry & Furnace Co., Opens Chicago Office

The gas division of the American Foundry & Furnace Co., Bloomington, Ill., has opened a Chicago office at 1025 Peoples Gas building, 122 South Michigan avenue, under the management of Barney Olson and Ray Clewell.

Mr. Olson started with the Peoples Gas Light & Coke Co. in 1902 and was associated with that firm in various capacities until 1922 when he joined the Chicago office of the Bryant Heater Co. He resigned from the Bryant organization in September, 1931.

Mr. Clewell also started with the Peoples Gas Light & Coke Co., after graduating from the University of Illinois in 1923. He was later with the C. A. Dunham Co., as a member of its St. Louis sales force. He entered the Chicago organization of the Bryant Heater Co. in 1927, resigning in September, 1931.

◆

New Jersey Credit Group Plans Party

The Plumbing, Heating and Factory Supply Men's Credit Association of Northern New Jersey will hold its annual "get together" dinner-dance and entertainment at the Swiss Chalet, Passaic street, Rochelle Park, N. J., on January 23. Complete arrangements have been made by the entertainment committee which consists of Joseph Sel of Englewood Plumbing Supply Co., Inc., Englewood, N. J.; R. Morris of A. & J. Friedman Co., Passaic, N. J., and George A. Snyder.

The officers of the association are: George A. Snyder, Neyland Plumbing Supply Co., Clifton, N. J., president; Morris Jaffe, Harris & Jaffe, Paterson, N. J., vice president; Harry Demarest, White & Shauger, Inc., Paterson, N. J., secretary-treasurer.

Plumbers Hold Merchandising Meeting at Plant of Lehman Sprayshield Co.

A group of members of the Master Plumbers Association of Philadelphia held an educational dinner-meeting at the showroom of the Lehman Sprayshield Co., Philadelphia, Pa., on the evening of December 10.

The meeting was arranged by Harry L. Stilwell, chairman of the educational committee of the association, for the purpose of discussing plans by which plumbers can increase their business through the sale of sanitary glass shower stall doors and bath tub enclosures. All of the officers of the association were present and each brought a member as a guest. Representatives of several of the plumbing supply houses were also present.

After a description of the technical and patent features of the equipment by L. H. Lehman, of the Lehman Sprayshield Co., the discussion centered around various sales and promotion policies. It was the general opinion that modernizing bath rooms with equipment of this kind would stimulate plumbing work, and it was felt that many plumbers have overlooked a profitable field. In many cases a profitable sale of a shower stall door or bath tub enclosure can be made by the plumber, if he will suggest this to his client and then seek the co-operation of the manufacturer in promoting the sale.

Before the dinner, the visitors inspected the Lehman company's plant and observed the various processes in the manufacture of glass shower doors and bath tub shields, the factory being kept in operation that evening for the occasion.

Informal speeches were made by the following: Maney J. Feeney, president, Philadelphia Master Plumbers Association; Harry L. Stilwell, chairman, educational committee; Mr. Hambleton, Fleck Bros. Co.; Reinhardt, McArdle & Cooney, Inc.; Harry B. Lentz, Peerless-Pennsylvania Co.; L. H. Lehman, Lehman Sprayshield Co.; and George F. Uber.

In addition to those mentioned above, the following were present at the dinner: George M. Hicks, Walter Raid, Robt. H. Pflug-Felder, Robt. G. Weir, Harold C. Asquith, Wm. H. Beahm, Jas. Soehle, Howard Neilson, Edward F. Quaid, Elvin Mackay, Jos. M. McGinnis, Harry L. Stilwell, Jr., Robert M. Hicks, Henry Cramer, Conrad D. Eisemann, Martin Beahm, Wm. T. Savage, James T. Conway, Eugene Brehme, Matt Kerper, Calvin B. Doan, Albert Frank, Benj. Landau, E. Herman Moser, John J. Nagele, Alex Meldrum, Chas. A. Rapp, A. R. Finkel, P. D. Walters, J. W. Tucker and J. N. Murphy.

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Wholesalers in Boston Pledge Support for Plumbing and Heating Industries Bureau

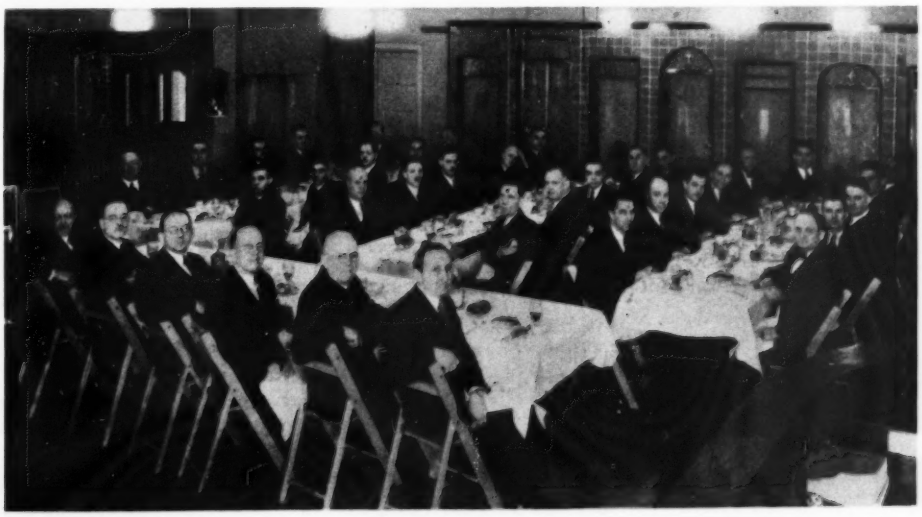
Setting the pace for the rest of the United States, wholesalers of plumbing and radiator heating equipment in Boston, Mass., and surrounding cities have pledged their financial support for the Plumbing and Heating Industries Bureau during 1932. This is the second consecutive year that wholesalers in the Boston district have supported the Bureau.

Following are the names of the wholesalers in Boston and vicinity who have pledged their support:

Bennett Co., Somerville; Louis Bourneuf Corp., Lynn; Brown-Wales Co., Boston; Corcoran Supply Co., Cambridge; Dalton-Ingersoll Mfg. Co., Boston; Daly Plumbing Supply Co., Roxbury; R. Estabrook's Sons Co., South Boston; Wm. H. Gallison Co., Boston; Hirschfield & Mayer Co., Allston; W. B. Hubbard & Sons Co., Boston; Ideal Supply Co., Somerville; Johnson-Washburn Co., Boston; Locke, Stevens & Sanitas, Inc., Boston; H. W. Marshall Co., Newtonville; McAuliffe & Burke Co., Boston; The Monroe Co., Cambridge; Palmer-Mullen Co., Malden; Pierce-Perry Co., Boston; Plumbers Supply Co., New Bedford; R. C. Sullivan Co., Cambridge; Thompson-Durkee Co., Allston; Wacco Supply Co., East Boston; F. W. Webb Mfg. Co., Boston; Joseph H. Young Co., Charlestown.

The action of the Boston wholesalers was taken just as the 1932 Membership Committee of the Bureau announced as its goal, "Every wholesaler and manufacturer in the United States a member of the Bureau in 1932."

This committee consists of Jere Sheehan, Jr., of St. Louis, former president of the National Association of Master Plumbers, chairman; W. J. Spillane, president



Group picture taken at the dinner given by the Lehman Sprayshield Co., Philadelphia, Pa., for a group of members of the Philadelphia Master Plumbers Association

of the Central Supply Association; H. M. Reed, president of the Standard Sanitary Mfg. Co.; Harry M. Hart, former president of the Heating and Piping Contractors National Association; W. K. Glen, advertising manager of Crane Co.; and C. W. Wanger, president of the Woodward-Wanger Co.

Speaking for the members of the committee as well as for his own company, Mr. Reed, in a forceful statement which the committee is sending to all manufacturers and wholesalers of plumbing and heating equipment, says:

"The Plumbing and Heating Industries Bureau is doing a good job for the industry. It is a job that needs to be done. There is no other organization in the field now that is set up to do this work of contractor and consumer education for the three branches of the industry.

"It is only fair that all three branches should join in the support of this work. The larger manufacturers have been supporters of the Bureau ever since its organization. We believe in the Bureau and its work. We invite—we urge—all manufacturers and wholesalers to contribute their moral and financial assistance in 1932."

Supplementing Mr. Reed's endorsement of the Bureau, the committee has issued the following statement:

"The depression is no excuse for not making a pledge for the support of the Plumbing and Heating Industries Bureau in 1932.

"The plumbing contractors have pledged $15,000 for the Bureau in 1932. The wholesalers and manufacturers—each and every one of them—must do their part in supporting the Bureau.

"The Bureau is the biggest bargain in the industries. The two industries are getting out of the Bureau in tangible services and benefits many times the annual budget.

"The Bureau is efficiently serving the industries. Its publicity work is particularly notable. Timely articles are constantly appearing in the daily press all over the country; many of the better magazines are featuring plumbing and heating articles prepared by the Bureau. This activity has definite value."

The committee is also calling to the attention of manufacturers and wholesalers the recent statement by President P. W. Donoghue, who said: "The National Association of Master Plumbers believes in the Bureau and in the present system of distribution. I should like to see greater evidence of your belief expressed in the tangible form of contribution to the support of the Bureau."

The committee is urging all of those who are solicited to send in their pledges promptly, so that the program for 1932 may be carried out as planned.

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Pipe Firm Completes Plant Enlargement

The Pacific States Cast Iron Pipe Co., Ironton, Utah, has completed enlargements at its plant at a cost of $100,000 to manufacture 12-in. pipe in 18-ft. lengths for the first time since operations were started five years ago, according to J. L. Hill, sales manager.

He reports that the company has run at full capacity during the past two years.

Southern Wholesalers Hold Successful Meeting

The Southern Wholesalers Association held its regular meeting at the Biltmore Hotel, Atlanta, Ga., recently. These meetings are usually held every three months, and in most instances the attendance is 100 per cent.

The membership of the association is made up of wholesalers from the states of South Carolina, Eastern Tennessee, Alabama, Georgia, and Florida, and this year has for its president C. B. Wilson, who is also second vice president of the Central Supply Association.

The program included many of the current problems of today, particularly merchandising, credits, and stabilization of competitive methods in accordance with the newly approved revisions to the trade practice rules recently released by the Federal Trade Commission.

Eugene R. Black, governor of the Federal Reserve Bank in Atlanta, delivered a splendid address on the reasons for the present depression and the necessity of the formation of the National Credit Corporation to bolster the credit structure of the nation. Outstanding among his statements was the fact that confidence is the most necessary element for recovery to normalcy, and it is something that cannot be bought for money, but rather must be earned with character. It is the demonstration of this high character that will build the necessary confidence between nations, competitors, and individuals, and without it we cannot expect anything better than we have today.

R. E. Saul presented a splendid paper on the subject "Operating Economies." He stated how his company had applied the pruning knife from the executive officers right down to the office boy.

The competition of houses not qualified to install the untrademarked merchandise they sell was discussed in open forum and many very satisfactory experiences were related.

The Central Supply Association was represented by Secretary R. Macfee and Max Burger of the legal and legislative department.

Mr. Burger spoke on the proposed modification of the anti-trust laws and how it would improve conditions in our industry, and Secretary Macfee presented the new merchandising and credit policies of his association, explaining their application to territorial problems discussed.

He briefly described the co-operation that is possible with the master plumber and the association activities along those lines, particularly emphasizing the value of adoption of a policy of prominently tagging merchandise with easily read price tags, so that the buying public may "read as they run" and thereby become conscious more and more of what their dollar will purchase in plumbing and heating supplies.

The individual state trade practice committees met separately for a whole afternoon discussing their particular state problems. At the meeting previous to this one it was jokingly said of the Eastern Tennessee meeting that tickets should be sold for it, but at this meeting not a single infraction was reported. This represented a transition of three months, brought about by the able work of the trade practice committee of that section coupled with the assistance rendered from C. S. A. headquarters.

F-634C
Closed Type Bubbler
as shown
—
F-634D
Open Type Bubbler

THE
CARDIC
a new "Standard" drinking fountain

● The Cardic is the newest "Standard" drinking fountain. Of simple, attractive design for building into the wall, it is made of genuine vitreous china in one piece, and may be obtained in white or colors.

In the Cardic a slant stream is directed as shown in the illustration. Lips cannot touch the bubbler, and it is constructed to prevent squirting. It is made of heavy brass with a brass guard. The water supply is controlled by a self-closing valve placed at the most natural position for easy operation.

One of the important features of this fountain is the new design automatic pressure regulator. Even when the pressure varies from 10 to 125 pounds, water is delivered in a uniform stream through this automatic regulator.

Use the Cardic on your next drinking fountain installation.

"Standard" PLUMBING FIXTURES

Standard Sanitary Mfg. Co.
106 Sixth Street, Pittsburgh
DIVISION OF AMERICAN RADIATOR & STANDARD SANITARY CORPORATION

COMPRESSION LAVATORY FAUCETS . . .

with Interchangeable Handles for Installations of Every Type

China lever handle

Four ball china index handle

Forged handle of modernistic design

Four arm all china handle

THESE Capitol Brass faucets of the one standard design with interchangeable handles, are obtainable in either heavy or medium types and in optional nickel or chromium plate finishes. All have standard shanks with ¼" I. P. male couplings. Of high grade brass they are beautifully finished and are typical of that excellent workmanship that characterizes every Capitol Brass product. Get in touch with your nearest jobber for prices and other information.

Bohn Aluminum & Brass Corporation

CAPITOL BRASS DIVISION

MANUFACTURERS OF BRASS VALVES, BOILER TRIMMINGS AND PLUMBERS' BRASS GOODS

DETROIT~MICHIGAN

William B. Talbott, in retiring as president of the Central Supply Association at its 37th annual convention, said—

"Distribution and Credits Are Industry's Major Problems"

OUR problems today are too gigantic and important to be handled individually and no one factor can succeed without the other. There have been few times in our history when this dominant factor—CO-OPERATION of all interests was so essential to individual or collective success. It is because this spirit of co-operation has prevailed in the past, that the Central Supply Association has weathered the storm.

Secretary Macfee is deserving of much credit for the masterful manner in which he has taken over the duties of his office. W. E. McCollum, our past secretary, did a wonderful job in energizing our association.

In spite of all the complexities and problems, I feel that I have been rewarded by a richer friendship with those with whom I have come in contact, with leaders of all branches of the industry and especially those located in the territory covered by the Central Supply Association. From these leaders I have obtained their personal views and their suggestions as to our procedure in handling some of our major problems. It is the opinion of most of these men that the major problems of our industry today are:

First—The Problem of Distribution,
Second—The Credit Situation.

It is true that there are many others, but I will confine my remarks at present in reference to these two. I shall not attempt to be evasive, nor have I any desire to be personal. We are reminded that the best work is done by men who are not afraid of their own ideas, and it is evident that for our industry to exist, that some of our ideas must be put into action and *action* without thought is like "shooting without aim." Suffice it to say, we are all aiming for business, but most of all a more profitable business.

Since the collapse of the stock market two years ago, the volume of our business has gradually decreased. We are now convinced that the stock market is a barometer for our business. As an industry—as individuals, we are faced with responsibilities today that cannot be submerged. To survive, yes, to exist, we must get back a portion of our former volume and it is of vital importance that this business must be profitable. A business barometer cannot rise without a reasonable profit being reflected; even though we regain a portion of the business we have lost, *profit* is essential to our success and necessary before we can expect a business recovery.

At this particular time we are distressed—we are dizzy—we are handicapped by mental hazards and a gloomy atmosphere. Our recuperative powers are becoming dissipated. The demoralizing influences and fallacious rea-

soning are creating barriers that break down our initiative and courage and throttle our progress. Our policies are becoming distorted, ethics are being submerged. Our recovery depends upon our ability to eliminate these evils—overcome these mental hazards and to analyze our problems in a calm manner and do so without a feeling of prejudice. We must realize intelligence and aggressiveness are the essential cardinal principles in a successful solution of our present problems.

Must Create Greater Demand for Plumbing and Heating Products

Our industry, like many others, is suffering from the disastrous effects of overproduction, or under consumption. We must create a greater demand for our goods, respect the law of supply and demand, or expect the elimination of some of the factors now engaged. If present conditions in production and distribution of plumbing and heating products continue to prevail it will mean a "survival of the fittest." We must expect to experience this economic pruning process that is taking place at the present time.

"Frankly, this breaking down in sales policy has been accelerated during the past few years by selfish, unethical manufacturers, distributors and contractors, who through deceptive, contemptible and disguised practices, have attempted to protect their interests, by carrying water on both shoulders. Manufacturers and wholesalers, who are members of our own association, contrary to their announced sales policy and despite their repeated claims of loyalty, are responsible for this abortion. They have disregarded moral codes, business ethics and sound business principles"

Let us compare our industry to an orchard. Experience teaches us that it is imperative that some of the trees be trimmed, others removed entirely, in order to prevent over-crowding and dwarfing in growth. Then, too, it is necessary to do a certain amount of spraying to kill the bugs and insects. As a result the trees that survive the pruning process, having more room to mature, receiving more nourishment and sunlight, thrive and begin to bear fruit, provided the orchard has been properly cultivated.

Now our industry is comparable to the orchard —there must be pruning before it can be expected to become profitable. It is sound economic reasoning to believe that over-crowding of markets must be corrected. The manufacturer, distributor or contractor, who, like the tree that is decaying in body or branches, must respond to the stimulus of economic surgery, or be removed.

To survive, our business must be healthy and it must have sufficient fertility to sustain existence and permit growth. We cannot expect to survive an economic pruning, if we are warped in our policies and do not justify our existence, by yielding a profit on our investments.

It is evident that our method of distribution and our credit policies are of vital importance and *they* will influence and determine our profitable existence, or elimination. We all are familiar with the manner in which our products have been distributed for years, but today in our industry, there is prevalent a growing desire on the part of some manufacturers and distributors to eliminate one or other links in our method of distribution. To many of us, this plan impresses us as a revolutionary idea. The advocates of this movement justify their action by contending that they have no alternative, that conditions over which they have no control have caused a breaking down in the system of distribution which has been recognized, and pursued, since the birth of our industry.

Others also state, and in all sincerity, that their decisions and contentions to change, or modify, their methods of distribution, are based entirely upon the fact that the policy of selling direct, is economically sound and fundamentally correct. They argue with considerable logic, that in order to remain in business, and be rewarded with their share of business that they must change, or modify, their selling methods before they are eliminated.

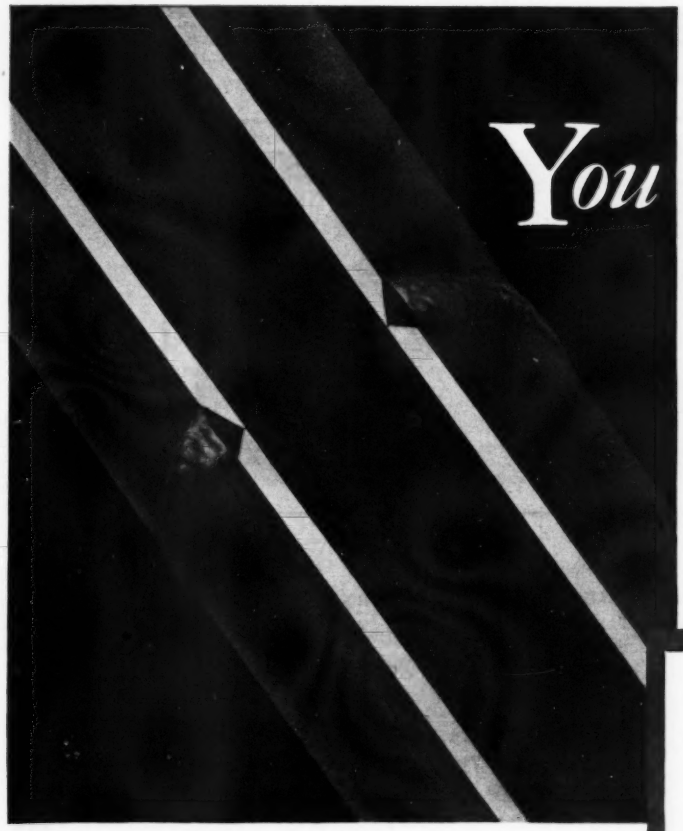
Direct-to-You Sales Are Menace

Additional contentions are to the effect that other industries, not restricted by our custom in this respect, are more successful from a merchandising viewpoint. Frankly, this breaking down in sales policy has been accelerated during the past few years by selfish, unethical manufacturers, distributors and contractors, who, through deceptive, contemptible and disguised practices, have attempted to protect their interests, by carrying water on both shoulders.

Manufacturers and wholesalers, who are members of our own association, contrary to their announced sales policy and despite their repeated claims of loyalty, are responsible for this abortion. They have disregarded moral codes, business ethics, sound business principles. They are the factors who initiated this direct selling policy in our industry, fostered and cultivated, financed and refinanced, encouraged and assisted the growth of this direct-to-you movement.

Present Distribution Method Has Proved Its Worth

Intriguing as their arguments are, is it not possible that this direct-to-you idea might be a subterfuge for failure in management, over-expansion, over-production, insufficient capitalization, pernicious granting of credit, desire for volume regardless of profit, or an inability to sell quality over price? Gentlemen, the importance of this issue demands most serious consideration. Let us analyze sanely and carefully, well knowing that it means success or failure to us. Let us remind you that our



You can OXWELD any kind of Piping

BRASS
for hot and cold water piping and connections

CAST IRON
for soil pipe and vents

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for water heaters and connections

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for heating systems

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for soil pipe and vents

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ANY kind of pipe can be successfully and economically joined by oxy-acetylene welding. This modern low-cost method of pipe joining is now so highly perfected that any good pipe fitter can, after moderate training, make high-strength welded joints in every metal and alloy used in plumbing, heating, or ventilating systems.

How welding saves money and simplifies work is explained in the book, "Oxwelded Construction for Modern Piping Services," which we will be glad to send you without charge or obligation. Write for your copy today.

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A series of motion pictures, showing the fundamental principles of the oxy-acetylene process for welding and cutting metals, and typical applications of oxwelding and cutting in the fabrication of piping systems, is now available for free distribution. Your organization or Union Local will find these pictures immensely interesting and beneficial. Write for release details.

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Whatever the fuel or firing requirement —

BURNHAM MAKES A BOILER

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BURNHAM JACKETED IN COLOR

17 and 27 inch Steel jacket and 4-ply air-cell asbestos insulation. Enameled rich red.

ROUND SECTIONAL

This boiler made the long fire travel famous. Large steam dome. Handled very easily.

BIG TWIN SECTIONAL

50-inch grate, divided for easy installation and operation. Twin sections, divided down the middle.

TUBE TYPE SMOKELESS

For burning soft coal efficiently and without smoke. Like regular water tube type, plus smokeless feature.

HIGH PRESSURE HOT WATER SUPPLY

Sectional construction guaranteed up to 80 lbs. working pressure. Supplies up to 3800 gallons. Furnished complete with relief valve and automatic Damper Regulator.

WELDED STEEL (Also 3-Purpose)

For heating, hot water supply and incineration. Completely welded. Used up to 15 lbs. working pressure.

JUNIOR HOT WATER SUPPLY

Will keep 175 to 700-gallon tank always full of hot water. Guaranteed up to 80 lbs. working pressure.

LAUNDRY STOVE

Triangular Revolving Grates. A pail of coal each 24 hours. Furnishes hot water for the average family.

BURNHAM CAST IRON RADIATORS

Occupy about ⅓ less space than ordinary cast iron radiators of same rating. Shorter. Lower. Narrower. Can be recessed in standard studding.

FERO TUBE RADIATORS

3, 4, 5, 6 or 7 tubes. Clean and efficient.

BURNHAM AIR AND VACUUM VALVES

Full line for radiators, risers and mains. Special construction for long life. 5-year guarantee.

STEEL TANKS

and complete line of other heating specialties of all kinds.

Burnham Boiler Corporation

IRVINGTON NEW YORK

Representatives in all principal cities of the United States and Canada

industry was developed on the policy of goods being sold by manufacturer to wholesaler to contractor. We have accumulated wealth, prestige and friends, under this system.

Any change in our selling methods might mean disaster to our association, to our business, employes and dependents and it would be a most unfriendly acknowledgement for the loyal co-operation and patronage we have received from the majority of contractors engaged in the plumbing and heating industry.

Our friends in the contracting branch of our industry are suffering with us, and today, of all times in our history, we must not overlook our obligation to those who have sustained our existence and supported our policies.

We have manufacturers, wholesalers and contractors, whose dealings have been honorable and the injustice that would be done to them would forever haunt us—robbing us of that pleasure and peace of mind which is so essential to happiness and contentment.

Support of Contractors Is Needed

It is difficult to anticipate success without the support of the contracting branch of our industry. We know that they, too, have their "wolves in sheep's clothing." Numbered among them are large and small contractors who have given aid and assistance to the sponsors of the direct-to-you movement. Many large contractors have ignored our recognized policies of distribution. They enjoy the advantage of a wholesaler's purchasing power and yet evade the restrictions placed on the recognized distributor. In so doing, they have established precedent for others. We know, also, that many small contractors not only patronize these direct-to-you agencies, but are content to have the privilege to bid on the labor necessary to installation. These conditions increase our difficulties and arouse us to the realization that our problems of distribution are today most important.

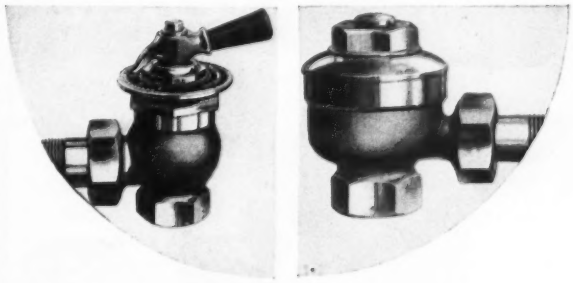
My remarks were prefaced by the statement that I had no disposition to be evasive, or personal, but I cannot evade the introduction of the opinions, or the sentiments of many of our more conversant members who submitted their views to me, urging that this vital subject be brought before you. I have no intention to abuse the sincere opinion of others, who might not honestly agree with me, and contend it is unpopular to ridicule their conclusions.

It is true, in considering any change in distribution, that the element of doubt possesses us and we wonder whether our individual attainment, our success as wholesalers or manufacturers, during the past few years, qualifies us to pass judgment upon others, whose unrestricted distribution policies are apparently successful.

Are we certain that our vision is perfect, or are we blinded by being the slaves of custom and tradition? *Is it necessary* that we shackle or restrict freedom of thought on subjects which, in the opinion of many of our members, have direct bearing upon our very existence? We are of the opinion that it is not, and therefore made provision on our program for a discussion of problems confronting us and it is hoped that those who advocate any change, or modification, in distribution policies,

PROFESSORS NO LONGER SHOUT

A large eastern university had constant trouble with drip traps in the steam lines. Several different makes were tried with the same result —absolute failure . . . Water hammer frequently made it difficult for professors to lecture or conduct classes . . . Three Barnes & Jones return traps were installed *on trial* at the worst points in the system. *They are there yet* and 2,000 more like them. The last 10 buildings erected have been completely equipped with B & J valves as a result of the service given by the original installation.



Specify Barnes & Jones valves on your next job . . . Write today for bulletins.

BUILT TO A STANDARD, NOT TO A PRICE

BARNES & JONES INC.

127 BROOKSIDE AVENUE, JAMAICA PLAIN, BOSTON, MASS.

in defense of their contentions, will take advantage of the opportunity afforded them.

Credit Is Industry's Most Serious Problem

Now gentlemen, today our industry has the same problems as the entire world in regard to credit. It is evident that this subject, also, is one of great importance to us all. The opinions of some of our members were evenly divided as to which subject—credit or the problems of distribution, was the most important; but it is the opinion of your chairman that the subject of credit is perhaps the more vital.

Certainly these subjects are closely allied. The credit situation in our industry is a serious one. Many have struggled along, handicapped by problems of credit up to the present time. Unfortunately, others have fallen by the wayside, hopelessly mired, because of their inability to realize on their receivables and real estate investments or are crippled by a lack of sufficient capital, inventory shrinkage, failure to reduce overhead and inventories and other facts with which you are all familiar.

Contractors are unable to pay their wholesalers and in many instances the wholesalers are unable to pay the manufacturers—some of whom are now unable to pay the banks, and the banks are increasing their restrictions on loans, thereby creating a deplorable condition. We also find that reserves, or surpluses, have been wiped out, or greatly reduced. Many dealers and wholesalers are absolutely unable to take advantage of the cash discounts offered them. A majority, however, are able to discount by reducing their inventories, while on the other hand, many concerns discount the invoices that carry a five per cent cash discount. Perhaps a partial solution of our credit situation, can be accomplished, by the universal adoption of the five per cent cash discount—rewarding those concerns, or dealers, who are able to avail themselves of this privilege. We are informed that the experience of those firms, who have been allowing five per cent cash discount, has been most satisfactory. However, before considering the universal adoption of a five per cent cash discount, machinery should be set up to protect it against abuse.

While red ink will record the year of 1931, as one of business failures, still we must recognize the fact that it also has its advantages. To attain success, we must profit by our experience and in the future avoid the pitfalls which have entrapped us.

We realize our frailties and our weaknesses and as we emerge from the dark, gloomy fog that has encompassed us for the past two years, we do so, perhaps, with nothing visible, but at least, with a feeling of hope. We are convinced that our industry is an essential one; we know that plumbing and heating goods must be manufactured, sold, installed and serviced; we know the people of this great country of ours demand the necessities and conveniences that our products afford them. We must continue to protect the health of the nation and as one of the most essential industries, we cannot waiver in our obligations to the public.

We may pause momentarily, in discussions of our problems, endeavoring to ascertain the best method of procedure, in fulfilling our obligations, but, gentlemen

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Radiator Valves

DESIGNED in accordance with standard roughing-in dimensions and include every desirable type—angle, straightway, and offset corner, with or without unions, right or left-hand and with wheel or lock shield and key on operating stem. Kennedy Valves, Malleable Iron and Brass Fittings help to speed up pipe fitting jobs by their uniform excellence and ease of connecting up to pipe lines.

You can obtain Kennedy Products from your local supply house.

The Kennedy Valve Mfg. Co.
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of this convention, we must carry on and the first prerogative to our success, is the elimination of bad and unsound practices. We must eliminate mental hazards and realize that "kites rise against the wind and not with it." We must inject a spirit of realism into our meetings, and it is imperative that we stiffen our resistance to fallacious reasoning; that we dispel the gloom that enshrouds us; that we forget the vicious rumors and overlook prejudices. We must have a stronger faith in our government, in our industry and in each other. We must win confidence, we must have the courage to be honest, we must exert a stronger sense of loyalty to those who serve us. We must live and let live; we must energize our ability to federate all branches of our industry; we must resist any tendency to enervate, or weaken, our business and moral standards; we must submerge selfish desires; we must carry on with a greater conception of the Golden Rule: "Do Unto Others as You Would Have Them Do Unto You." We must expect periodic adjustments of our economic conditions; we must look for the rainbow which follows the storm; we must remember that intelligence and aggressiveness have their rewards and we must go back to work and *work*.

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St. Louis Chapter Elects J. M. Foster, President

The St. Louis Chapter, A. S. H. V. E., met at the Roosevelt hotel on the evening of December 2, the meeting being called to order by President Robert Rosebrough.

The report of the nominating committee, consisting of L. Walter Moon, chairman; George Myers, J. W. Cooper and W. J. Conk, was accepted and the following officers were elected for the ensuing year:

James M. Foster,. president; Clinton A. Pickett, 1st vice president; Paul Sodeman, 2nd vice president; C. R. Davis, secretary, and A. L. Walters, treasurer. Board of Governors: Robert M. Rosebrough, A. E. White, George Myers and L. Walter Moon.

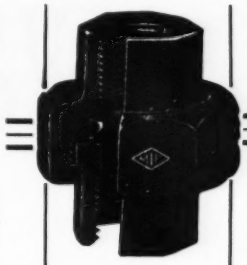
Robert Rosebrough, retiring president, thanked the members of the various committees for their co-operation and support during his administration. James M. Foster, newly elected president, spoke on plans for building up the Chapter and stimulating interest in the Society.

George Myers, in reporting for the membership committee, presented the application of six Limited Chapter members, all of the St. Louis County Gas Company, and all proposed by Kenneth S. Wallace. These applications were from E. B. Bischoff, Edgar W. Gettinger, Wm. B. Kelliher, E. H. Ronsick, Adolph G. SanSuici and Gus. E. Wilke. Mr. Myers made a motion that a publicity committee be appointed, which was approved.

◆

Receives Government Contract for Copper Tanks

Gerstein & Cooper Co., Boston, Mass., has been awarded the contract to furnish six large copper tanks, having a total capacity of 12,000 gal., to be installed in the new House of Representatives building in Washington, D. C., One of the tanks will be used for the water cooling system, three are hydropneumatic tanks, and two are hot water heater storage tanks.



M I F

The M. I. F. Trade Mark on each Fitting is for your protection

BRANFORD UNIONS

BRASS TO IRON SEATS
BRANFORD 350* W. P.
BRANFORD JR. 250* W. P.

MALLEABLE IRON FITTINGS

STANDARD MALLEABLE
EXTRA-HEAVY MALLEABLE
RAILING FITTINGS
PLUGS & BUSHINGS

COPPER TUBE FITTINGS

Malleable Iron Fittings Co.
Branford :: Conn.

TRENTON BRASS·PRODUCTS

TRENTON Sink and Tray Plugs are one of the reasons we have been able to maintain our reputation over a span of years—a reputation built on quality and service.

Trenton Sink and Tray Plugs will also serve to maintain your reputation if you give them a chance.

LOOK FOR OUR CATALOG IN SWEET'S CATALOG

The Trenton Brass & Machine Co.
TRENTON • • NEW JERSEY
Represented by
ROLLIN C. WILSON, 7 E. 42nd St., New York, N. Y., 261 Franklin St., Boston, Mass.

Recent Sloan Flush

1. **Empire State Building, New York**
   Archt: Shreve, Lamb & Harmon, New York
   Plbg. Jobber: Dimock & Fink Co., New York
   Plbg. Contr: J. L. Murphy, Inc., New York
2. **Penobscot Building, Detroit**
   Archt: Smith, Hinchman & Grylls, Detroit
   Engr: McColl, Snyder & McLean, Detroit
   Plbg. Jobber: Crane Co., Detroit
   Plbg. Contr: Harrigan & Reid, Detroit
3. **Kansas City Power & Light Co. Building, Kansas City**
   Archt: Hoit, Price & Barnes, Kansas City
   Plbg. Jobber: W. B. Young Sup. Co., Kansas City
   Plbg. Contr: Magill Plbg. & Htg. Co., Kansas City
4. **Board of Trade Building, Chicago**
   Archt: Holabird & Root, Chicago
   Plbg. Jobber: Standard Sanitary Mfg. Co., Chicago
   Plbg. Contr: M. J. Corboy Co., Chicago
5. **Waldorf-Astoria Hotel, New York**
   Archt: Schultze & Weaver, New York
   Engr: Clyde R. Place, New York
   Plbg. Jobber: Dimock & Fink Co., New York
   Plbg. Contr: John McMillan Co., New York
6. **Victor Lawson Memorial Y. M. C. A., Chicago**
   Archt: Perkins, Chatten & Hammond, Chicago
   Engr: James B. Lund, Chicago
   Plbg. Jobber: Crane Co., Chicago
   Plbg. Contr: H. P. Reger & Co., Chicago
7. **New York Hospital-Cornell Medical Center, New York**
   Archt: Coolidge, Shepley, Bullfinch & Abbott, Boston
   Engr: J. A. Cotter, Boston
   Plbg. Jobber: Crane Co., New York
   Plbg. Contr: John McMillan Co., New York
8. **Market St. National Bank, Philadelphia**
   Archt: Ritter & Shay, Philadelphia
   Plbg. Jobber: Hajoca Corp., Philadelphia
   Plbg. Contr: W. M. Anderson, Philadelphia
9. **Columbia - Presbyterian Medical Center, New York**
   Archt: Jas. Gamble Rogers, New York
   Asso. Archt: Henry C. Pelton, New York
   Plbg. Jobber: Crane Co., New York
   Plbg. Contr: W. G. Cornell Co., New York
10. **Harborview Hospital, Seattle**
    Archt: Thomas, Grainger & Thomas, Seattle
    Plbg. Jobber: Bowles Co., Seattle
    Plbg. Contr: Rautman Plbg. & Htg. Co., Seattle
11. **Strawbridge & Clothier Department Store, Philadelphia**
    Archt: Simon & Simon, Philadelphia
    Plbg. Jobber: Fleck Bros. Co., Philadelphia
    Plbg. Contr: Riggs-Distler Co., Philadelphia

SLOAN VALVE COMPANY · CHICAGO

Valve Installations

12. Chrysler Building, New York
Archt: Wm. Van Alen, New York
Engr: Ralston & Haltenhof, New York
Plbg. Jobber: E. Smolka Plbg. Sup. Co., New York
Plbg. Contr: John Weil, New York

13. Bank of Manhattan Building, New York
Archt: H. Craig Severance, New York
Engr: Purdy & Henderson, New York
Plbg. Jobber: Standard Plbg. Sup. Co., New York
Plbg. Contr: W. G. Cornell Co., New York

14. No. 1 La Salle Street Building, Chicago
Archt: K. M. Vitzthum & Co., Inc., Chicago
Engr: Jno. D. Small, Chicago
Plbg. Jobber: National Plbg. & Htg. Sup. Co., Chicago
Plbg. Contr: H. P. Reger & Co., Chicago

15. Carew Towers, Cincinnati
Archt: W. W. Ahlschlager, Chicago
Asso. Archt: Delano & Aldrich, New York
Plbg. Jobber: Elier Ohio Co., Cincinnati
Plbg. Contr: Thos. J. Dyer, Cincinnati

16. Gulf Building, Pittsburgh
Archt: Trowbridge & Livingston, New York
Engr: Tate & Tate, Philadelphia
Genl. Contr: Mellon-Stuart Co., Pittsburgh
Plbg. Jobber: Standard Sanitary Mfg. Co., Pittsburgh
Plbg. Contr: Geo. H. Soffel Co., Pittsburgh

17. Chanin Building, New York
Archt: Sloan & Robertson, New York
Plbg. Jobber: J. L. Mott Co., New York
Plbg. Contr: Louis Black, Brooklyn

18. Ohio Bell Telephone Exchange, Cleveland
Archt: Hubbell & Benes, Cleveland
Engr: G. A. Kositzky, Cleveland
Plbg. Jobber: Standard Sanitary Mfg. Co., Cleveland
Plbg. Contr: Smith-Oby Co., Cleveland

19. Fidelity-Philadelphia Trust Co., Philadelphia
Archt: Simon & Simon, Philadelphia
Plbg. Jobber: Hajoca Corp., Philadelphia
Plbg. Contr: W. M. Anderson, Philadelphia

20. Cincinnati & Suburban Bell Telephone Exchange, Cincinnati
Archt: Harry Hake, Cincinnati
Plbg. Jobber: Mutual Mfg. & Sup. Co., Cincinnati

21. Penna. R. R. Office Building, Philadelphia
Archt: Graham, Anderson, Probst & White, Chicago
Plbg. Jobber: Fleck Bros. Co., Philadelphia
Plbg. Contr: Riggs-Distler Co., Philadelphia

22. Terminal Commerce Building, Philadelphia
Archt: Wm. Steele & Sons, Philadelphia
Plbg. Jobber: McArdle & Cooney, Philadelphia
Plbg. Contr: Philadelphia Piping & Equip. Co., Philadelphia

BRANCHES IN ALL PRINCIPAL CITIES

South West Credit Bureau Holds Luncheon-Meeting

The South West Credit Bureau held a luncheon meeting at the Kansas City club, Kansas City, Mo., on December 18. The luncheon, which was attended by a large number of persons, was followed by a business meeting. Among those present from Kansas City were:

Virgil Ferguson and Ed. Harbordt, of U. S. Supply Co.; Harry Antrim, Dempster Mill Mfg. Co.; Albert Evans and Frank Scoles, of W. B. Young Supply Co.; I. A. Phillips, Crane Co.; Fred Burns and R. B. Mason, Kewanee Boiler Co.; W. C. Green, secretary of the Credit Bureau; H. M. Curfman, Kohler Co.; Dan. Lacy, Youngstown Sheet & Tube Co.; William B. Talbott, Baker Mfg. Co.; Eugene Goodson, A. Y. McDonald Mfg. Co.; George Allen, Kansas City Pump Co.; William A. Russell, United States Radiator Corp.

Among those in attendance from out-of-town were: H. B. Holihan, Missouri Water & Steam Supply Co., St. Joseph; Karl Davis, Salina Supply Co., Salina, Kans.; Jack Cooper, Harry Cooper Supply Co., Springfield; N. A. Zimmerman, Kohler Co., Kohler, Wis., and G. W. Christopher, Youngstown Sheet & Tube Co., Youngstown, Ohio.

Business Personals

IRVING N. BEELER has been appointed president of Pierce, Butler & Pierce Mfg. Corp., New York City. He is a graduate of Syracuse University with the degree of mechanical engineer. Following graduation, he became assistant superintendent of the Semet-Solvay Coke Oven Plant at Chester, Pa., where he remained until 1907, when he returned to his native city as assistant manager of the engineering department of the Syracuse Supply Co.

On March 1, 1913, he organized his own firm, under the name of I. N. Beeler Co., Inc., designing steam power plants, with offices at 1004 Hills building, Syracuse, N. Y.

In addition to the management of his own business, Mr. Beeler is a director of the First Trust and Deposit Co., Syracuse. Before his appointment as president, Mr. Beeler was chairman of the board of directors of Pierce, Butler & Pierce Mfg. Corp.

CLARENCE E. SEARLE, general representative of the Allis-Chalmers Mfg. Co., Milwaukee, Wis., has resigned, effective January 31, to take a position with a large eastern manufacturer. He will be succeeded as general representative by L. W. GROTHAUS, assistant manager of the electrical department. Mr. Searle has been associated with the company for 24 years, and for the last 18 years has directed its entire sales activities.

A. J. PURDUE, president and general manager of Peck Bros. & Co., New Haven, Conn., retired on January 1. Mr. Purdue had been associated with Peck Bros. & Co. for forty-two years, having joined the organization as a shipping clerk. Two years ago he tendered his resignation to the board of directors so that he could retire to private life, but it was not accepted. Mr. Purdue remained active up to the present at which time he again asked that his resignation be accepted.

CHESTER H. LANG, formerly assistant manager of the publicity department and then comptroller of the budget of the General Electric Co., has been appointed manager of the publicity department to succeed Martin P. Rice, who retired December 31 after more than 37 years of service with the company. Mr. Lang entered the employ of the General Electric Co. in 1919. After three years as a traveling auditor he was made assistant manager of what was then the publication bureau, which later became the publicity department. He continued in this position until January, 1926, when he was appointed to the newly created position of comptroller of the budget of the company.

JOHN C. LATIMER has been appointed representative in the Chicago, Ill., territory for the Eljer Co. of Ford City, Pa. The Eljer Company's Chicago headquarters and display rooms are at 2540 Diversey avenue. Mr. Latimer is well known in plumbing and heating circles in the Chicago district. He was formerly president of the Latimer-Lloyd Co., plumbing and heating wholesale firm of Evanston, Ill., and more recently was associated with the Inland Supply Co., in Evanston.

J. BERNARD HOWLAND, for the past ten years associated with the United States Radiator Corp., in Boston, Mass., has joined the sales force of the Timken-Detroit Company, manufacturers of oil burners. He will cover Metropolitan Boston territory.

R. D. EAGLESFIELD has been appointed district manager in charge of motor and welder sales with headquarters in Indianapolis, Ind., for the Lincoln Electric Co., of Cleveland, Ohio. Before joining the technical sales force of The Lincoln Electric Co., Mr. Eaglesfield was a manufacturer of motor driven machinery. Besides this experience, he has an educational background which includes studies at Allen School, Indiana University, Amherst College and at European institutions. The Indianapolis office of The Lincoln Electric Company is now located at 314 East 16th street in the Architects and Engineers building.

JAMES K. WADICK, manufacturers' representative of New Orleans, La., has announced the dissolution of the partnership of Salm & Wadick, effective December 31, 1931. He will continue in the business of manufacturers' representative under the name of James K. Wadick Co., with offices at 1000 Tchoupitoulas street, New Orleans.

R. CROWE, JR., formerly office manager of the United States Radiator Corp., in Kansas City, Mo., has been transferred to the Buffalo, N. Y., office of the concern. He has been associated with the corporation for the past six years.

MONEY IN THE PANTS POCKETS

Dole Valves in overall pockets . . . Dole Valves in tool kits . . . Then Dole Valves installed on one pipe steam radiators—it means MONEY IN YOUR PANTS POCKET—and satisfied customers, too.

Extra money, not the wages of your toil and experience, but "velvet" can be readily earned by simply carrying a couple of Dole Valves with you on every job. Have your journeyman pack a few in his tool kit, Vacuum Valves 2-B and Syphon Air Valves, too.

(Continued on next page)

VACUUM VALVES 2B
SYPHON AIR VALVES

DOLE

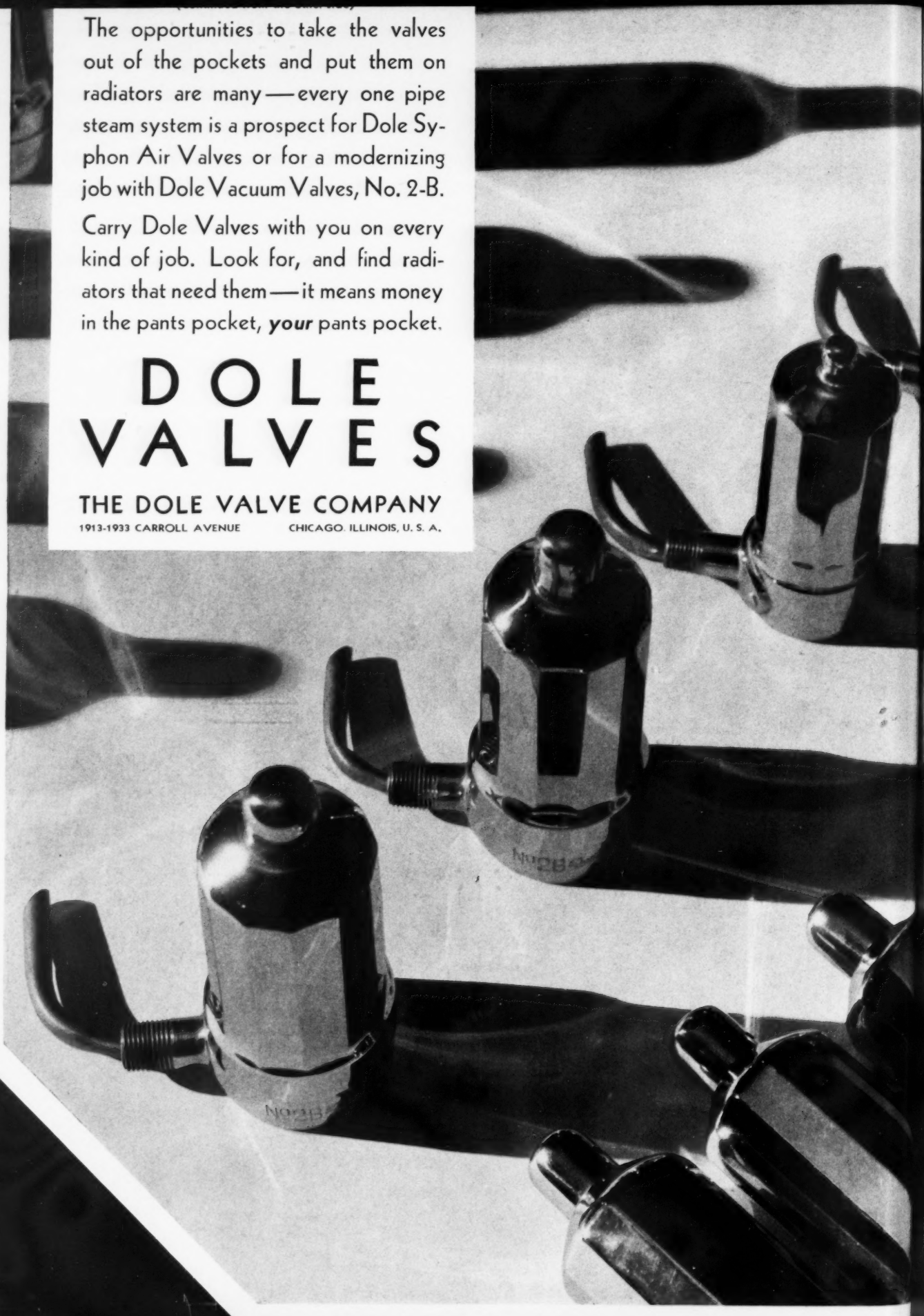
The opportunities to take the valves out of the pockets and put them on radiators are many — every one pipe steam system is a prospect for Dole Syphon Air Valves or for a modernizing job with Dole Vacuum Valves, No. 2-B.

Carry Dole Valves with you on every kind of job. Look for, and find radiators that need them — it means money in the pants pocket, ***your*** pants pocket.

DOLE VALVES

THE DOLE VALVE COMPANY

1913-1933 CARROLL AVENUE CHICAGO, ILLINOIS, U. S. A.



MARKETS

BUSINESS REPORTS FROM LARGE JOBBING CENTERS

Wholesalers Get Larger Cash Discount

During the first week in January, at least two large manufacturers producing a wide line of plumbing materials, announced a 5 per cent cash discount to wholesalers on their entire line of goods all on bills paid by the 15th of the month following purchase.

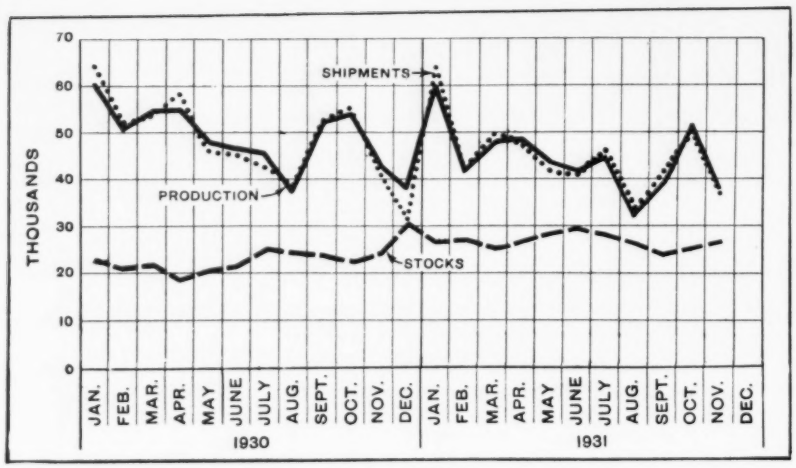
BENEFITING from their experiences in 1931, the majority of manufacturers, wholesalers and contractors who make up the plumbing and heating industry are entering 1932 better equipped to make a profit on today's smaller volume. They have as guides the examples of certain manufacturers and dealers who, through aggressive and improved merchandising methods, were able to boost their sales volumes above the general average of others in the same line of endeavor, and, in some instances, to even make a better sales record than in 1930. One case comes to mind, that of a manufacturer in the oil burner field who went so far as to increase his sales by 80 per cent over 1929, his previous record year

Business during the past two weeks maintained the moderate pace that prevailed throughout most of the month of December. Wholesalers were busy with their inventory and manufacturers' salesmen met with little success in their efforts to secure business. From all reports, however, jobbers' stocks are at an unusually low level, and it is the opinion of many sellers that any improvement in business will force distributors to commit themselves for additional supplies.

November, 1931, shipments of range boilers, based on data reported to the Bureau of the Census by 17 manufacturers, the value of whose output constitutes approximately 90 per cent of the total for the industry, totaled 36,930 units, as compared with 50,127 in October and 41,677 in November, 1930. Total shipments for the first eleven months of 1931 were 494,214 units, as compared with 550,666 boilers during the corresponding eleven months of 1930. (See chart on following page).

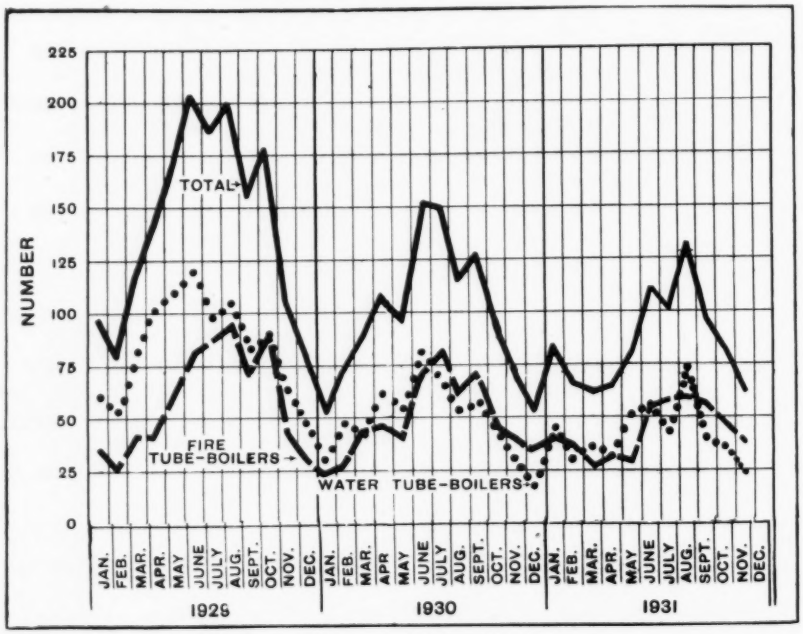
New orders for 491 steel boilers were placed during the month of November, 1931, according to reports submitted to the Bureau of the Census by 73 identical manufacturers. This compares with new orders for 672 steel boilers in October, and 893 in September, 1931. During the first eleven months of 1931, new orders were placed for 7,608 steel boilers, as compared with 12,352 during the corresponding period of 1930. (See chart on following page).

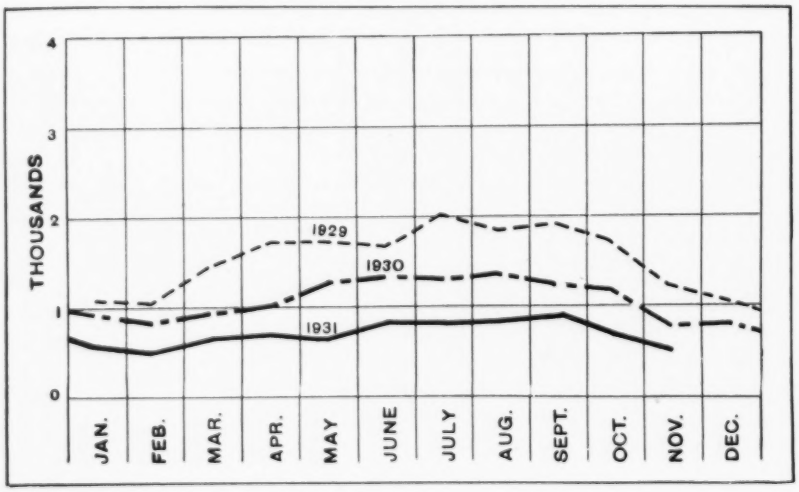
November, 1931, shipments of domestic water softening apparatus, as reported to the Bureau of the Census by 24 manufacturers, totaled 458 units, with a net sale price of $55,075, as compared with 518 units having a net sale price of $58,688 in October, and 647 units in November, 1930, having a net sale price of $90,231. Shipments for the first eleven months of 1931 were 6,305 units, with a net sale price of $787,204, as compared with 10,155 units, having a net sale price of $1,371,657 during the corresponding eleven months of 1930.



Range Boiler Shipments, Stocks and Production

Monthly Sales of Mechanical Stokers





New Orders for Steel Boilers

BOHN

ALUMINUM & BRASS CORPORATION

THROUGH ITS

CAPITOL BRASS DIVISION

ACQUIRES FULL MANUFACTURING AND SELLING RIGHTS TO

CONCO VALVES

With the acquisition of the Conco Valve by the well known Bohn Aluminum & Brass Corporation, and its equally well known Capitol Brass Division, this highly efficient temperature control valve will take its rightful place in the industry.

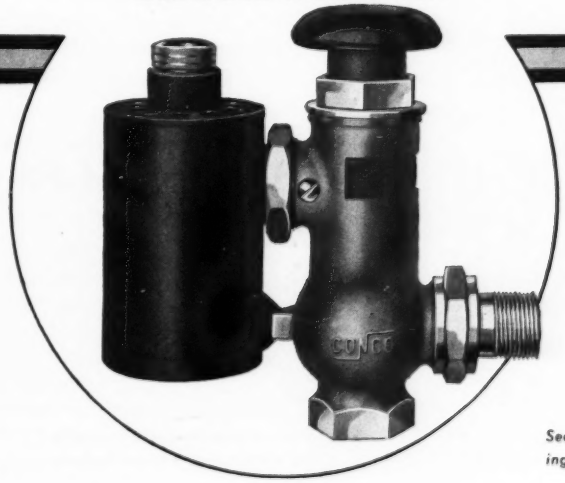
The vast manufacturing, engineering and research facilities of these organizations operating on a volume basis, makes possible a list of prices by far the most attractive that have ever been offered. Inquiries are invited—or get in touch with your heating contractor for complete details.

Conco Valves operate automatically and are installed on the radiator like an ordinary valve. They control the flow of steam to each individual radiator so that the desired temperature is maintained at all times.

The cost of Conco Valves is comparable to the ordinary manual control valve considering the fuel saving.

The Thermostatic element in Type "I" Valve is completely insulated from radiant and conducted heat, so the valve functions only by the actual temperature of the air in the room.

Bohn Aluminum & Brass Corporation
CAPITOL BRASS DIVISION
MANUFACTURERS OF BRASS VALVES, BOILER TRIMMINGS AND PLUMBERS' BRASS GOODS
DETROIT-MICHIGAN

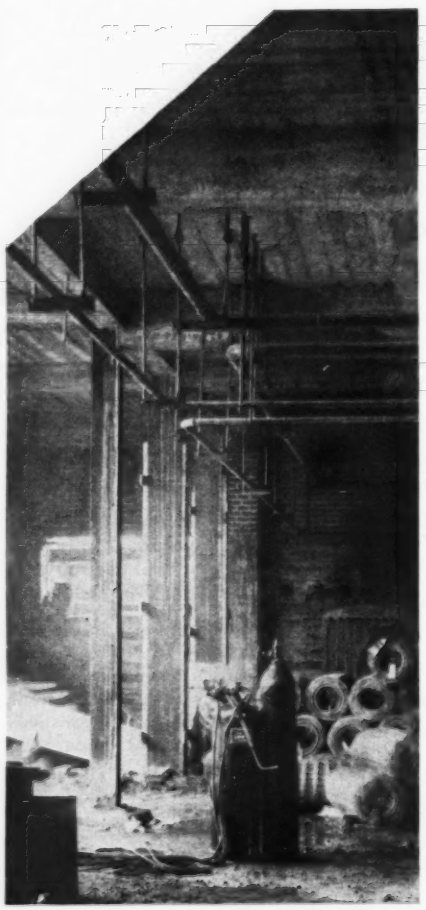


So accurately are Conco Valves designed and manufactured that they operate on a variation of only one or two degrees in room temperature. Can be used on any two-pipe heating system.

Fuel savings as high as 30 per cent have resulted from the installation of Conco Valves. Moreover the installation does not have to be complete throughout the system. You can use one Conco Valve—or one for every radiator.

See Conco Exhibit at Heating and Ventilating Exposition, Cleveland—January 25-29

Welding for Pipe Installations — — — Generally Recommended



The majority of plumbing and heating organizations are recommending the installation of pipe with the oxyacetylene torch.

There are many advantages in this method of installation:

——Pipe may be rapidly cut to length right on the job with a torch and cutting attachment.

——By welding the joints, pipe may be run in places where it would be impossible with other methods, thereby saving space.

——Properly made welded joints are as strong and permanently leak-free as the pipe itself.

——Smaller sizes of pipe may often be used because the smooth welded joints have less internal friction.

——First cost of installation by welding is generally less, and greater economy by this method is certain if upkeep is taken into account.

Airco Engineers, Airco Oxygen and Acetylene, and Airco-Davis-Bournonville torches and accessory equipment are leaders in this field as well as in others.

Ask your nearest Airco office listed herewith, for further details.

AIR REDUCTION SALES COMPANY

Lincoln Bldg., East 42nd St., New York

Baltimore
Bettendorf, Ia.
Birmingham
Boston
Buffalo
Charlotte
Chicago
Cincinnati
Cleveland
Dayton
Detroit
Jersey City
Kansas City
Los Angeles
Louisville
Milwaukee
Minneapolis
New Orleans
Oklahoma City
Philadelphia
Pittsburgh
Portland, Ore.
Richmond
San Francisco
Seattle
Shreveport, La.
St. Louis
Wheeling
Wichita, Kan.

Airco Oxygen—Airco Acetylene—Airco-Davis-Bournonville Welding & Cutting Apparatus—Supplies—National Carbide

Represented in Texas by Magnolia Airco Gas Products Co., Houston, Beaumont, Wichita Falls, Fort Worth and San Antonio.

The Metal Market

	Jan. 4	Avg. Nov., 1931	Avg. Sept., 1931	Dec., 1930
PIG IRON—				
No. 2 foundry, Chicago	$17.50	$17.00	$17.50	$17.50
PLATES AND SHEETS—				
Steel boiler plates, Pittsburgh, per lb.	1.50c	1.60c	1.60c	1.60c
Blue annealed sheets, No. 10, Pittsburgh, per lb.	1.85c	1.85c	1.85c	1.90c
*Hot rolled annealed sheets, No. 24, Pittsburgh, per lb.	2.40c	2.40c	2.40c	2.35c
Galvanized sheets, No. 24, Pittsburgh, per lb.	2.90c	2.90c	2.90c	2.90c
TIN—				
Straits tin (spot) New York	21.70c			
LEAD—				
E. St. Louis	3.55c			

The Old Metal Market
Dealers' Buying Prices

	Per lb.		Per lb.
Aluminum clippings	11½c	Copper, light	4 c
Block tin pipe	15½c	Heavy crucible copper	5 c
Brass, light	2½c	Zinc, old	1¼c
Brass, heavy yellow	3 c	Lead, heavy	2⅝c
No. 1 comp. red brass	4 c	Solder joints (close cut)	3¾c
Heavy copper and wire	4¼c		

NOTE: Prices are those quoted on Monday of this week.
*Comparisons are with old classification No. 24 black sheets.

Legality of Restrictions from Engaging in P. & H. Business

(Continued from Page 47)

The foregoing case constituted a valuable illustration of how the courts usually reason in cases of this kind. And in line with the holding announced, it is obvious that each case of this character must necessarily be decided in the light of its facts. If the taking of employment with a competitor by the seller of a business does not, in fact, increase the competition of a buyer, it is plain that such employment would not be a violation of a contract not to compete.

On the other hand, if the nature of the employment and business was such that the taking of employment did increase the competition it would be subject to restraint. In view of which, it is plain that when a plumbing and heating business is sold, coupled with a restrictive contract not to compete, both buyer and seller may well have a clear understanding of the scope of such provision, as insurance against after-dispute, in case the seller did wish to follow his trade in a small way or as an employe of a competitor of his buyer.

How Sewers are Protected from Steam and Hot Water

(Continued from Page 52)

The outlet pipe turns down inside the tank, to form the trap. By many it is considered a better method of forming the trap to keep the discharge connection entirely outside the tank, as in Fig. 3.

The outlet at the bottom of the tank allows it to be drained, by means of a gate valve.

Fig. 2 shows another layout for the condensing tank connections, and a third one in Fig. 3.

Horizontal tanks are also used, as seen in Fig. 4.

Get Your Share!

Don't wait for the other fellow to line up all of the attractive business in your territory. Get behind this good product and MAKE MONEY!

Write today for our attractive dealer proposition. Others are glad they did.

THE OHIO HEATER CO., *Columbus, Ohio*

We sell thru the plumbing trade exclusively.

OHIO
Automatic
WATER HEATER

Several attractive models—A size to fit any requirement.

Sometimes the condensing tank discharges into a sump or into a floor drain, such a connection being shown in Fig. 4.

The purpose of the condensing tank of course is to cool the discharge from the heating plant before it goes into the building drain or sewer. There are several ways in which the cooling may be assisted. Probably the most common method is to circulate cold water through coils placed inside the tank.

Another method is to bury the tank under the basement, when conditions are favorable. The dampness of the ground does the cooling.

It is generally considered safe to discharge hot water boilers and low-pressure steam heating boilers into the drainage system without passing the discharge through a condensing tank.

Convention Dates

January 12, 13 and 14, 1932—WISCONSIN—The annual convention of the Wisconsin Master Plumbers' Association, to be held at Milwaukee, with headquarters at the Pfister Hotel.

January 19, 20 and 21, 1932—ILLINOIS—The annual convention of the Illinois Master Plumbers' Association, to be held at Springfield, Ill., with headquarters at the Abraham Lincoln Hotel.

January 25-29, 1932—A. S. H. V. E.—The annual meeting of the American Society of Heating and Ventilating Engineers to be held at Cleveland, Ohio, with headquarters at the Hotel Statler. Also the Second International Heating and Ventilating Exposition, at the Cleveland Auditorium.

February 2, 3 and 4, 1932—OHIO—The annual convention of the Ohio Master Plumbers Association, to be held at Cincinnati, with headquarters at the Netherland Plaza Hotel.

March 9 and 10, 1932—E. S. A.—The Spring meeting of the Eastern Supply Association, to be held at the Hotel Astor, New York City.

March 14 and 15, 1932—KANSAS—The annual convention of the Kansas Master Plumbers Association, to be held at McPherson, with headquarters at the Hawley Hotel.

March 14, 15 and 16, 1932—INDIANA—The annual convention of the Indiana Association of Master Plumbers, to be held at Muncie, with headquarters at the Hotel Roberts.

April 5 and 6, 1932—NEW YORK—The annual convention of the New York State Association of Master Plumbers, to be held in New York City, with headquarters at the Hotel Pennsylvania.

April 11-16, 1932—A. O. B. A.—The ninth annual convention and show of the American Oil Burner Association, to be held in Mechanics' building, Boston, Mass. Convention headquarters at the Statler hotel.

May 16, 17 and 18, 1932—H. & P. C. N. A.—The 43rd annual convention of the Heating and Piping Contractors National Association, to be held at Detroit, Mich., with headquarters at the Book-Cadillac Hotel.

June 21, 22 and 23, 1932—N. A. M. P.—The 50th annual convention of the National Association of Master Plumbers, to be held in New York City, with headquarters at the Hotel Pennsylvania.

COMING TRADE EVENTS

January 11, 1932—The annual Wisconsin state-wide Apprenticeship Conference, to be held at the Pfister Hotel, Milwaukee, Wis.

January 16, 1932—Meeting of the Southern California Federation of Merchant Plumbers, to be held at Los Angeles, Calif.

January 23, 1932—The annual dinner-dance of the Plumbing, Heating and Factory Supply Men's Credit Association of Northern New Jersey, to be held at the Swiss Chalet, Rochelle Park, N. J.

February 1-6, 1932—Six-Day Short Course for plumbing inspectors, instructors, master and foreman plumbers, to be given by the College of Engineering, University of Wisconsin at Madison, Wis., in co-operation with the Wisconsin Master Plumbers' Association.

June 20, 21, 22 and 23, 1932—Exposition of plumbing, heating and allied products, in connection with the 50th annual convention of the National Association of Master Plumbers in Madison Square Garden, New York City.

No. 804

"SPEND FOR THE HOME IN 1932"

No. 2302

They'll buy

American BRASS GOODS

No. 412

American Kitchen Sink Faucets in chromium, American Sink Strainers and Traps in chromium will make any kitchen more attractive, more in keeping with the housewife's desires.

KITCHEN brightness is one of the first things the housewife wants and filling this want with American Brass Goods will bring you big profits.

Take the slogan, "Spend for the home in 1932" and American equipment to the homes in your community *now*. Go to work at once. Other plumbers have been successful with such a program, so can you.

Order American Brass Goods from your jobber. Order the equipment shown on this page or any other of the numerous kitchen items of American manufacture and get to work with this idea.

AMERICAN SANITARY MFG. CO.
ABINGDON . . . . ILLINOIS

Demonstration Boiler Proves Success at Building Show; Contractor Sells Seven Jobs

How heating contractors may capitalize on the use of displays at local building shows or other exhibits, and substantially increase sales and profits, is illustrated in the experience of Dallago & Heritage of Vineland, N. J.

This concern, with the co-operation of the Spencer Heater Co., of Williamsport, Pa., put on a display of the company's line of magazine feed boilers at the Vineland Building Show. Direct results of the show were the sale of seven of these boilers and a long list of prospects for a follow-up sales campaign.

The success of Dallago & Heritage with this display is another evidence of the continual desire of people to find out "how it works." Full advantage of this inherent characteristic of human nature is permitted by the construction of the manufacturer's cut-away display boiler which was featured at the Vineland Show.

As the name suggests, the entire front of the boiler is cut away and replaced with glass. Properly illuminated, this allows excellent opportunity to observe the construction of the boiler and its gravity feed operation.

Similar Spencer displays have been used successfully by other heating contractors and many, where space permits, have arranged exhibits in their show windows.

◆

Kansas Utility Law Upheld; Case to Be Appealed

The Shawnee County District Court (Kansas) has upheld the constitutionality of the law enacted by the last legislature prohibiting equipment merchandising by utilities. The case which was decided was brought by the Henry L. Doherty interests. An application appealing from the lower court's decision has been filed with the Kansas Supreme Court.

◆

Start Plans for New York Convention

William Wolff, of Brooklyn, president of the New York State Association of Master Plumbers, has announced the appointment of the committee to handle arrangements for the annual New York state convention, which is to be held at the Pennsylvania hotel, New York City, April 5 and 6.

Fergus McLoughlin heads the committee as chairman and working with him are: M. J. Kennedy, J. D. Cooley, V. J. Duffy, W. Edmund Stradling, J. O. Stapf, Martin W. Utz, John J. Dixon, James L. Baker, John F. Rogers and James A. Burns.

$1,000,000, In Modernization Work Is 1932 Estimate of Cleveland H. & P. C.

The anual meeting and banquet of the Heating and Piping Contractors Cleveland Association, held atop the Hotel Allerton on December 14, was attended by almost one hundred members of the industry.

The entertainment consisted of moving pictures of the conventions of the Heating and Piping Contractors National Association held in New York City and Louisville and the Cleveland Association's clam bake, taken and exhibited by the Youngstown Sheet and Tube Co. Following this a burlesque sales demonstration entitled "Liars DO Figure," was presented by a cast from the association. Among those who participated were: R. J. Mayer, Ray Kosel, Horace Wetzel, R. H. Morgan and Fred Whiteman.

After the entertainment was completed, bridge and other card games kept those present occupied until midnight.

At the business meeting and election which preceded the banquet, B. Y. Kinzey, association manager, gave his annual report of the activities of the association, which included the following high lights:

That while building permits for Cuyahoga County for the first eleven months of 1931 had decreased 51.5 per cent from 1930, the volume of the members as reported to the association has decreased but 40 per cent.

That use of radiator heating in residential construction during 1931 had shown a further increase to 32.9 per cent, as compared with 27.5 per cent in 1930 and 16.4 per cent in 1929.

That as a result of the Modernization Campaigns in which the association has participated since March 1, the members of the association have reported closing a quarter of a million dollars of this type of business. He further brought out that seven members who had been regular attendants of the association's Modernization Sales School had sold 82 of the 94 jobs reported during September and October, clearly demonstrating the value of the school.

That the members of the association can do a million dollars worth of modernization work during 1932 if each one will make a special effort to secure this type of business instead of entering the keen competition found in new work.

The officers elected for the ensuing year were: R. J. Mayer, president; W. R. Rhoton, vice presi-

dent; Adolph Weiss, secretary; A. C. Banko, treasurer; W. R. Brewer and M. Rovner, directors for two-year term; A. R. Brueggeman, George W. Spohn and E. L. Heinle, directors for one-year term.

◆

Wisconsin Masters Are Ready for Annual Convention

Educational talks and discussions relating to work done by various organizations connected with the plumbing industry are included in the program for the 38th annual convention of the Wisconsin Master Plumbers' Association, to be held at the New Pfister hotel, Milwaukee, Wis., January 12, 13 and 14.

Sessions will open on Tuesday morning with an address of welcome by H. C. Weber, president of the Milwaukee Master Plumbers' Association.

Mayor Daniel W. Hoan will give the opening address on the afternoon program. Other speakers scheduled include Professor F. M. Dawson, of the department of hydraulic and sanitary engineering at the University of Wisconsin; Walter Simon, supervisor of apprenticeship of the Wisconsin Industrial Commission; C. J. Marsh, field secretary and counsel, Wisconsin Master Plumbers' Association; Joseph G. Hildebrand, manager, Plumbing and Heating Industries' Bureau, of Chicago.

Officer's reports will be heard at the opening session on Wednesday, which will be followed by the address of Frank R. King, director of the bureau of plumbing and domestic sanitary engineering, Wisconsin State Board of Health.

R. V. Sawhill, editorial director of DOMESTIC ENGINEERING, will speak on "A New Deal for the Plumbing and Heating Dealer."

Wednesday afternoon there will be addresses by M. H. Frank, assistant to vice president of the Wisconsin Power and Light Co., and by R. O. Jasperson, commercial manager of the Milwaukee Gas Light Co. The annual meeting of the policyholders of the Master Plumbers' Mutual Liability Company will follow.

The session on Thursday morning will be devoted to reports of national delegates, consideration of resolutions, election of officers and national delegates, and etc. R. G. Bookhout, of the Plumbing and Heating Contractors' Trade Journal will close the morning session with a talk entitled, "Merchants or Glorified Journeymen."

National President P. W. Donoghue will give the first address on the Thursday afternoon program, followed by W. J. Spillane, president of the Central Supply Association.

Organized Effort Will Speed Better Times

By E. B. KLEINE
Vice President, N.A.M.P.

THERE never has been a time in the history of the National Association of Master Plumbers when confidence and co-operation among the men engaged in our industry was so necessary as now.

It seems the current depression wave has spread a pall of pessimism throughout the land. Economic conditions are lowering the standard of business conduct, obscuring ethical considerations, and turning honorable business competition into a sanguinary, ruthless and vicious conflict.

President Hoover recently appointed a commission to investigate the unemployment situation and to formulate some plan of relief. He has called conferences with bankers and leaders in the business world, he has interviewed economists, and he has called on colleges to do their bit by means of charitable football games. The success of this program is apparent.

All of this activity is an indication of the value of intelligent co-operation and a measuring rod of the benefit of constructive organization.

No sane person believes that the business depression will continue much longer. Statistics from various industries indicate that the depression curve has touched the lowest period and is gradually on the uptrend.

The process of rehabilitation of industry will be a slow one and will be quickened only by the subordination of petty personalities and the merging of the common interests toward a single end.

There has never been a time in which the necessity of united co-operation among men in our industry is so apparent. The value of co-operation among organized forces has never been more acutely demonstrative than the present time. Organization, the most effective agency of progress in any business, is the sole means of beneficial co-operation. The prosperity and advancement of any industry is reflected by the strength, effectiveness and productiveness of its trade association.

President Roosevelt said, "Every man owes a part of his time and money to the upbuilding of his industry." How better can we lend such support than by active and co-operative participation in our trade association? The contacts made and benefits gained far outweigh any sacrifices that we might make, whether in time or money, and yet too many men in our industry either fail to join our association or, once associated, drop out when business slows down, giving lack of funds as their excuse or because of petty or imaginary grievances.

Their action may be likened unto that well known character, "the man who killed the goose that laid the golden egg." Instead of conserving along other lines, these men withdraw themselves and their support, thereby severing a connection of vital importance to

themselves and their business. The harm that such men do is far out of proportion to their individual importance in their industry.

Now is the time to build up our association. It will help to eliminate some of the evils that have crept into our industry and will tend to remove the most devastating element in our or any industry, price slashing.

Organization now and intelligent wholehearted cooperation will create a situation comparable to a well trained, well equipped army taking the field against a badly trained, ill equipped and poorly generaled army.

It is therefore incumbent on every master plumber of today to support his association both in a financial manner and by giving of his services. He should enter with a will to do and thereby make the Association produce for him and not for the purpose of having his name on the roster.

Our good president, P. W. Donoghue, stated, "One of the most important jobs facing the officers, in this our golden anniversary year, is to increase the membership of the National Association of Master Plumbers. In numbers there is strength; we need that strength today." I therefore urge all state and local associations to do their part by putting on membership drives to bring in every master plumber worthy of membership.

To insure the successful conclusion to these drives, I request that all of our members put their shoulders to the wheel, give of their time and effort and make our association one of the strongest and most effective in the country.

Let our slogan be, "EVERY WORTHY MAN A MEMBER."

◆

Green Bay Masters Get Good Results from Advertising Campaign

William J. Femal, master plumber of Green Bay, Wis., discussed a recent advertising campaign conducted by the Green Bay Master Plumbers' Association, before a recent meeting of the Fox River Sanitary Club at Neenah, Wis.

Mr. Femal told how the Green Bay master plumbers conducted a co-operative advertising campaign in local newspapers, featuring standard makes of fixtures at prices comparing favorably with those of fixtures sold by mail order concerns. Results were "more than satisfactory," he declared.

George F. Reeke, Green Bay, Wis., master plumber and a director of the National Association of Master Plumbers, also spoke at the meeting, discussing recent meetings he had attended in New York and Chicago.

◆

New Rule Affects Oil Burner Dealers in New York State

Of special interest to oil burner dealers in New York State is the decision of the New York Fire Insurance Rating organization in adopting the latest revised rules of the National Board of Fire Underwriters. The new rules became effective December 15 and under the insurance regulations permit the installation of two unenclosed basement tanks connected to the feed line to the burner through a three-way valve.

It is to be understood that where city or town regulations do not permit the installation of two 275 gallon storage tanks without fireproofing, that the above rule does not apply.

◆

Montreal Oil Heating Group Elects Officers

O. A. Fogarty, of the Vilas Oil Burners Co., was re-elected president of the Oil Heating Association of the Montreal Board of Trade at the recent annual meeting of the association in Montreal, Canada. Other officers named were Raymond Beausoleil, National Supply Co., vice president; C. L. Robertson, Shell Co.; Joseph Elie of Joseph Elie & Co., F. Fraser, of Minneapolis-Honeywell Regulator Co., and A. E. Barry, of the St. Lawrence Welding Co., directors.

"All reports now clearly point to an upward trend in general business conditions," declared Mr. Fogarty in his annual report.

◆

Reaffirm Standard on Brass Pipe Nipples

According to a recent announcement by the Department of Commerce, Bureau of Standards, the standard entitled, "Brass Pipe Nipples, Commercial Standard CS10-29" is reaffirmed without change for another year beginning July 1, 1931, or until authorized revisions are duly endorsed by the industry. The Bureau has recently completed a survey for the purpose of determining the adherence, effectiveness and benefits resulting from the standard.

◆

Heating and Ventilating Exposition to Be Largest and Most Complete Ever Held

What is destined to be the largest and most complete exposition of its kind in the world will open its doors in Cleveland, Ohio, January 25, 1932, when the Second Heating and Ventilating Exposition gets under way at the Cleveland Public Auditorium Annex. Sponsored by the American Society of Heating and Ventilating Engineers the exposition will be held simultaneously with the annual meeting of that society during the week of January 25-29. The American Society of Refrigerating Engineers also meets in Cleveland the same week and will actively participate in the exposition.

An idea of the comprehensiveness of the exposition may be gained from the fact that it will bring together hundreds of exhibits showing the latest and best heating, ventilating, air conditioning and refrigerating equipment as related to air conditioning. Included in the displays will be heaters and burners designed for gas, oil and solid fuels, electric heaters, fans, air filters, humidifiers, unit heaters and unit coolers.

A center of attraction will be the displays of the new types of instruments of precision for the control and regulation of temperature, pressure, volume, time, velocity, draft and other functions. New products in the field of insulating materials will also be shown.

Equipment for human comfort, industrial process work in the home, factory, office, public building, hotel, theatre, bank, industrial plant and other buildings designed for habitation or as meeting places will demonstrate the rapid progress which has been made in the way of dust removal and silencing of noises, as well as in the supply of pure air.

THE C-D-S WATERPROOF GASKETS

READY TO USE — NO HEAT REQUIRED

LEAVES NO STAIN ON FLOOR

C-D-S

WATERPROOF FELT

CLOSET BOWL GASKET

The famous Peter E. Snow process for waterproofing closet bowl gaskets is exclusively available in the C-D-S Closet Bowl Gasket.

For years this process has produced a gasket that is pronounced by plumbers everywhere as the ideal packing for setting or re-setting a closet bowl.

The illustration shows its simple application. Its resistance to moisture is phenomenal. It leaves no stain on the floor.

Install the C-D-S Closet Bowl Gasket on all jobs, new and repair.

It costs no more to have C-D-S protection than you are asked to pay for ordinary gaskets. The C-D-S Gasket saves enough over the old putty joint method to more than offset its price.

Packed complete with stud bolt gaskets in a handy package. Available through your jobber. Insist upon C-D-S.

C-D-S PRODUCTS CORPORATION

MUNCIE, INDIANA

THE C-D-S WATERPROOF GASKETS

Timely Discussions Feature Southern California Federation Meeting

A program so arranged as to afford the happy combination of both enjoyment and profit was offered at the December 12 meeting of the Southern California Federation of Merchant Plumbers, when that group assembled at the Surf and Sand Club, Hermosa Beach.

The main session immediately following the banquet was featured by two addresses, one by Al. W. Griewe, Los Angeles business engineer, and J. M. LaDieu, secretary of the California State M. P. A.

Mr. Griewe opened his talk by stressing the need for remedial measures to be applied to the credit situation, and the doing away of direct selling by other than the retail branch. "We have heard much about merchandising, but there's still lots to do about it," said Mr. Griewe. "We've simply got to go out and find business, and when we can't find it we must create it." He reminded his hearers of the peculiar advantage they enjoy by reason of being sent for, stating that this advantage should be followed up without fail, thereby making a customer out of every person who calls for a repair job. "Remember: your greatest sales resistance is automatically overcome when your journeyman makes his first service call."

Mr. Griewe held that there is nothing new about lax sales efforts, a weak credit structure and direct selling; that they have always been in evidence; and that they have nothing to do with today's business conditions, except to accentuate them. He then quoted the result of a recent national survey which disclosed the fact that a large part of every year's commercial failures was due to poor business management. The speaker showed that the obvious way out is to convert every possible "lead" into an active, profitable account, and work solidly toward correcting trade evils.

State Secretary LaDieu summed up the results of the year just ended. "Some of us will show a profit, some a loss, and still others have been eliminated." He made striking reference to the billboard poster of a California furniture dealer wherein the word "DEPRESSION" is broken up so as to cause the letters "D," "E," and "I" to drop out, making the sign read "PRESS ON." Mr. LaDieu enlarged upon the idea by stating that "In the effort to improve the conditions in our own industry we should consider the 'D' as direct sales, the 'E' as enmity and the 'I' as inertia. With these three elements taken out we will then be more capable of following the intent of the slogan 'PRESS ON.' When looking at the word 'depression' we should consider the 'D' as standing for a definite plan of action, the 'E' for enthusiasm, and the 'I' for interest in our work."

The regular golf tournament was played off in the morning, followed by an organization meeting in the afternoon. During the progress of the evening meeting the ladies enjoyed cards in the lounge. There was dancing from ten o'clock until midnight.

President William Neis of Los Angeles presided. The next meeting is scheduled for January 16th at Los Angeles.

$500,000,000 Building Gain Is Predicted for 1932

BUILDING construction totaling $3,420,000,000 in the United States during the year 1932 was indicated recently from figures compiled by the Copper and Brass Research Association.

This is an increase of more than half a billion dollars, representing 17.5 per cent, when compared with that of 1931 which, estimated on virtually complete reports, amounted to $2,909,000,000. The figures are exclusive of public works.

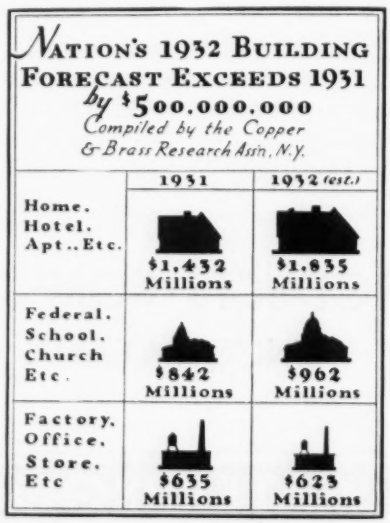
The greatest increase in volume is expected in the Central and Middle Western states. Building construction in this area was well below average during 1931, according to the association's figures; and a shortage of houses in suburban sections of cities and in many small towns is expected to increase the building total in that territory by $200,000,000. Increased volume also is expected in New England, the Mid-Atlantic and Southern states and on the Pacific Coast. In the New York area a drop is anticipated in commercial and industrial building, but this should be partially offset by residential construction.

"Residential construction, as usual," the association said, "will lead all other classifications during 1932. For the first time in four years it is likely to exceed 50 per cent of the total.

"For the eleven-year period from 1921 to 1931, inclusive, residential building averaged 54.6 per cent of the total. In 1929, 1930 and 1931, the percentages were 49.5, 44.4 and 47.5, respectively, compared with the high point, 58.7 in 1924. At the present time, according to statistics gathered in various sections of the country, supported by figures on the normal increase of population, there is a housing shortage in many sections. For that reason residential construction is expected to increase to 53 per cent.

"Our figures indicate that $1,780,000,000 will be spent for residential construction (exclusive of hotels) in 1932, an increase of $400,000,000 over 1931.

"Public building, due largely to the government's program, also will increase sharply. In average years this has amounted to only 1.7 per cent of the total. For the forthcoming year, if Congress appropriates the money President Hoover has asked, public building should be 8.4 per cent."



Wisconsin Ready for Annual Apprenticeship Conference

The fifth annual statewide apprenticeship conference for the plumbing industry of Wisconsin, sponsored by the Wisconsin State Board of Vocational Education, will be held at the New Pfister hotel, Milwaukee, on January 11, as announced in a previous issue.

Meetings are open to all representatives of the plumbing industry, the state departments or agencies which are charged with responsibilities in this field, the local part-time schools of Wisconsin, plumbing inspection departments, and state and local advisory committees.

E. E. Gunn, Jr., assistant state director of vocational education for Wisconsin will act as chairman of the conference. The program will consist of a series of topical discussions by various persons, followed by general discussion from the floor.

F. R. King, state plumbing and domestic sanitary engineer with the State Board of Health, will discuss the new rules of the Wisconsin State Board of Health; W. F. Simon, supervisor of apprenticeship for the Industrial Commission, will discuss the apprenticeship situation as applied to the plumbing industry; E. E. Gunn, Jr., will talk on the survey work being done by the State Board of Vocational Education; H. G. Noyes will discuss the co-ordinator's viewpoint with reference to instructional developments and possibilities; and reports will be heard on the development of organization work in the western part of the state by F. D. Branson and L. J. Eron.

Plumbing instructors in the state will make their annual reports as the closing event of the program. Plumbing instructors in the state include: F. O. Maeder, A. J. Matthias, M. M. Hanson, H. Pommerenck, H. C. Miller and G. W. Farndale.

The conference will open at nine o'clock and will continue until such time in the afternoon as may be necessary to dispose of the presentations and discussions in connection with the program.

◆

Boston Oil Burner Dealers Form Permanent Organization

At a meeting of the oil burner dealers and the representatives of branch offices selling oil burners in Boston, Mass., held recently at the Kenmore hotel, Boston, a permanent organization was completed to be known as the Boston Oil Burner Associates. The following officers were elected: C. Allan Fisk, The Timken-Detroit Co., president; M. G. Chamberlain, R. Estabrook Sons Co., vice president; Ray Hall, Electrol, Inc., secretary-treasurer.

The association voted to take an active part in the national Convention and Oil Burner Show of the industry to be held in Mechanics building, Boston, April 11 to 16, 1932, and authorized the appointment of a convention committee to be composed of oil burner dealers and the representatives of branch offices to care for some of the details of the convention.

At a meeting to be called at an early date, an effort will be made by the membership of the new association to have every oil burner dealer and branch office representative take part in the activities of the organization.

FRONTGRIP WRENCH
NEW TRY IT. NEW
CAN'T BE PUT ON WRONG
RATCHETS ■ REVERSES ■ ADJUSTS.
WILL HANDLE WORK IN CLOSE QUARTERS.
CAN'T SLIP ■ CHAIN WON'T JAM.

TRY IT YOURSELF

The

NEW

FRONTGRIP

FRONTGRIP WRENCHES ARE DISTRIBUTED BY

N. O. Nelson Mfg. Co., St. Louis and 20 Branches
Hajoca Corporation, Phila. and 32 Branches
Dimock & Fink Co., New York and 4 Branches
Charles Millar & Son Co., Utica and 3 Branches
Braman, Dow & Co., Boston
Vandecar-Harmon Co., Albany
Frontier Water & Steam Supply Co., Buffalo
M. Lehman & Sons Co., Inc., Brooklyn
Samuel Sloan & Co., Rochester
W. G. Shafer Co., Inc., Syracuse
Standard Machinists Supply Co., Pittsburgh
Rhode Island Supply & Sprinkler Co., Providence
C. S. Mersick & Co., New Haven
and others

MULTIPLE SELLING CORP., 51 E. 42nd ST., NEW YORK

That hissing, spitting radiator is offering you cash money!

There are Seven Warco Air and Vacuum Valves

each with a definite function to perform. Backed by 41 years' experience in the Air Valve field. Guaranteed for 5 years. Cost less than other high grade air valves. Ask your Wholesaler.

"Warco" No. 1

⅛" side outlet for radiators

Price 79c

There is profit today in reconditioning heating plants. Tell your journeymen to keep this in mind when out on any kind of repair job.

Washering faucets? Take a look at the radiators. Repairing a broken water line? Size up the heating situation. Flushing out a clogged toilet? See if the bathroom radiator is doing the right kind of a job.

Those radiators may be in need of Warco Air Valves. The boiler may need cleaning. There may be a job that will bring in real cash—just by keeping your eye peeled. Warcos mean more heat and lower fuel costs.

Talk to the house owner. Make money in spite of the depression.

W. A. RUSSELL & CO., *Established 1890*

New York Chicago Boston Detroit Baltimore Denver Minneapolis

"Warco" Automatic Air & Vacuum Valves

W. A. RUSSELL & CO., Grand Central Terminal Bldg., New York City. D-1

Please send complete data on Warco Air Valves.

Name.....

Address.....

City.....State.....

Rochester Anthracite Club Elects Officers

The Anthracite Club of Rochester, N. Y., has celebrated its first anniversary and elected the following officers for the ensuing year: President, H. J. Rainbow, of the Minneapolis-Honeywell Regulator Co.; vice presidents, J. E. Axman, of the Spencer Heater Co., and George Dixon, of the Heggie-Simplex Boiler Co.; executive secretary and treasurer, N. C. Curtin, of Anthracite Service. The three additional directors selected are: O. E. Pasch, Daniel Dean of the Electric Furnace-Man Sales Corp., and Fred C. Zeitler. H. E. Costich, retiring president, automatically became a member of the board.

◆

Death of J. J. Hartnett

J. J. Hartnett, master plumber of Monroe, Wis., died Saturday, December 12, following a heart attack. Mr. Hartnett, who was in his 56th year, was in his shop when stricken. He came to Monroe 28 years ago, and formed a partnership with Thomas Niles, under the name of Niles and Hartnett. For the past twenty years, however, he had conducted his business alone. Mr. Hartnett was born in Stamford, Conn. Survivors include a sister and a brother.

◆

Mrs. R. G. Thomas Dies

Mrs. R. G. Thomas, San Antonio, Tex., wife of R. G. Thomas, director of the National Association of Master Plumbers, died on December 24. Mrs. Thomas was in her 61st year at the time of her death. She was born in London, England, but lived for forty years in San Antonio. She had always been greatly interested in the many business and association activities of her husband, and as a result was well known in the industry.

◆

Death of William Fellendorf

William Fellendorf, of Sea Cliff, L. I., N. Y., known locally as the "plumber-philosopher" and celebrated for his contributions to German periodicals on conditions in this country and on philosophical subjects, died December 11th. He was in his 71st year. He was president of the Sea Cliff Civic Association and active in many local endeavors. His death was the result of an automobile accident which occurred some months ago.

◆

Death of Jerome Patek

Jerome Patek, president of the Tank & Patek Co., plumbing and heating contracting firm of Milwaukee, Wis., died recently following a short illness resulting from a throat infection. Burial was on Monday, December 28, in Wanderer's Rest cemetery. Mr. Patek, who was in his 39th year, had been prominent in the local plumbing industry for many years. He was a member of the Milwaukee Master Plumbers Association.

◆

Get Plumbing and Heating Contract

The firm of Chatfield & Sharp, Inc., plumbing and heating engineers, of Jamestown, N. Y., has been awarded a contract to furnish and install plumbing and heating equipment in a new central high school building in Randolph, N. Y., to cost more than $300,000.

Tournament and Christmas Party of San Francisco Trade Group Is Big Success

Ideal winter golf weather and the prospect of plenty of good-fellowship, fun and entertainment at the banquet following the tournament were the two chief attractions that drew two hundred members and guests of the Plumbing and Heating Club of San Francisco and the Bay Cities to the scene of their fourth annual Hi-Jinx. This is distinctly the club's gala party and never fails to attract a capacity attendance. The party this year took place at the Union League Golf and Country Club at Millbrae, Calif., an hour's drive down the peninsula from San Francisco, on the afternoon and evening of December 17.

The Union League, 71-par, heavily trapped course, gave the players plenty to think about. Sixty-three turned out for tournament play, of whom Ross M. Clark annexed Class A honors with a net 70, Dave Turner and Martin Doerr tied in B Class with a 77 apiece, and Frank B. Mosher was conceded the crown in Class C. By reason of his low net 70, regardless of class, Mr. Clark likewise qualified for temporary possession of the C. F. Church Mfg. Co.'s silver trophy. Permanent possession of this beautiful cup, when all scores were reported, passed to Frank B. Mosher by reason of his having twice earned temporary title to the trophy during the past year. The November tournament B Class tie between Martin Doerr and Morris Greenberg remains undecided, Mr. Greenberg not playing. Among the guests, L. Cochran shot the lowest gross score, an 86, while Elmer Rowe took 122 strokes to get around. Merchandise orders were presented all winners, both members and guests, except in the case of ties.

A sumptuous Christmas banquet, in which turkey figured prominently, was served in the club's immense locker room, which had first been cleared of the steel lockers. A continuous U-shaped table was placed against three walls, enclosing many smaller tables, a raised stage being erected at the East end. The tables were profusely decorated with small, frosted Christmas trees gaily festooned in brilliant colors, while overhead the roof trusses and beams were hung with garlands of woven greenery and scarlet berries. Ten cabaret performers provided entertainment during and after the banquet. The golf committee, made up of Chairman Robert Allmon, W. H. Rainwater, W. J. Turner and Thomas F. Leary, were largely responsible for the success of the occasion. Member hosts were Ross M. Clark, C. P. Hensley and J. D. Fleming. The golf scores:

	G.	H.	N.
McCarthy	104	22	82
Gray	91	(G)	91
Stewart	111	(G)	111
Lawson	100	18	82
Glesener	87	(G)	87
McLeod	93	18	75
Rowe, E.	122	(G)	122
Gabbert	107	17	90
Strand	105	(G)	105
Clark	90	20	70
Blair	94	15	79
Turner, M. G.	103	(G)	103
Cochran	86	(G)	86
Turner, D.	100	23	77
Heil	85	10	75
Gibson	107	(G)	107
Woodson	88	(G)	88
Fleming	98	(G)	98
Doerr	102	25	77
Beuttler	103	(G)	103
Hayden	101	(G)	101
Rainwater	100	15	85
Taylor	92	15	77
Olson	91	10	81
Callahan	95	(G)	95
Renner	101	(G)	101
Rae	110	(G)	110
Mosher	100	27	73
Brace	107	(G)	107
McClenahan	94	(G)	94
Greenwood	99	(G)	99
Chittenden	114	35	79
Higgins	103	22	81
Rowe, W. A.	93	16	77
Elliott	89	10	79
Powers	87	(G)	87
O'Hair	98	15	83
Derbyshire	96	(G)	96
Mixter	89	10	79
Turner, W. J.	90	14	76
Hudson	98	19	79
Hensley	93	(G)	93
Summers	87	(G)	87
Newman	119	(G)	119
Burt	104	(G)	104
Pratt	89	(G)	89
Steffen	121	(G)	121
Honeywell	87	(G)	87
Wilson	90	17	73
Farry	101	19	82
Forsythe	93	20	73
Caldwell	101	(G)	104

(G)—Guest

◆

Pittsburgh Co-operates With Committee of Ten

As the result of a recent meeting of representatives of coal and related industries at the Fort Pitt hotel, Pittsburgh, a general committee and a sub-committee were designated to undertake the organization of a Pittsburgh local group to co-operate with the Committee of Ten. J. F. Flood was named chairman of the general committee, and James Ward, III, was designated secretary.

Among those on the general committee are: Joseph McGinness, of McGinness, Smith & McGinness, heating and piping contractors; E. H. Eggleston, of the American Radiator Co.; L. A. Bell of Bartley-Oneil & Co.; F. C. Houghten, heating engineers; T. F. Campbell of T. F. Campbell & Co.; R. V. Bingay, Pittsburgh Stove & Range Co.

Left: Robert Allmon, chairman of the golf committee, and Hal Sales, secretary, two of the ten members of combined golf and entertainment committees who acted as official hosts at the December tournament and HiJinx of the P. & H. Club of San Francisco. Right: F. J. Chittenden, Elmer Rowe, Frank B. Mosher, J. J. McLeod, William A. Rowe and Thomas Strand. Below, left to right: Thomas Mixter, Charles Higgins, F. M. Gabbert, W. H. Rainwater, W. J. Turner, J. Heil, D. Turner, R. A. Hudson, G. F. Emanuels, J. V. Greer, W. Allen Taylor, A. J. Glesener, G. E. Greenwood, H. Lawson and T. W. McClenahan

Many Local Associations Elect New Officers

Greenfield, Mass.

The Master Plumbers' Association of Greenfield, Turners Falls, and Vicinity (Mass.), recently elected the following officers for the year 1931-32: Charles F. Peck, Greenfield, president; C. L. Fuchs, Greenfield, vice president; D. Mathewson, Millers Falls, secretary; Joseph Starbuck, Turners Falls, treasurer.

Grand Rapids, Mich.

The Plumbing and Heating Contractors' Association of Grand Rapids, Mich., recently elected William Lindemulder to serve as president of the association during

Left to right: Mr. and Mrs. James F. Walsh, Mrs. James Gallagher and Mrs. James Harwell, all of Nashville. Photos taken at the annual convention of the Associated Master Plumbers of Tennessee, held recently at Nashville

the ensuing year. Other officers elected at the same time were Frank Posner, vice president; and William A. Decker, secretary-treasurer.

Albany, N. Y.

The Albany, N. Y., Master Plumbers Association, at its recent annual election, named Clarence Keeshan to lead the organization as president during the ensuing year. E. W. Tompkins was elected vice president; J. Matt deRouville, secretary; and Joseph Nicklas, treasurer.

Auburn, N. Y.

The Master Plumbers Association of Auburn, N. Y., recently held its annual meeting and re-elected the same officers who headed the association last year. The officers are: R. O. Jones, president; and E. D. Conley, secretary-treasurer.

Morristown, N. J.

The Master Plumbers Association of Morristown and Vicinity (N. J.) has elected Kenneth Armstrong to head the organization as president during the ensuing year. John J. Kane is the new vice president; Robert A. Sagarese, secretary; and William A. Snudden, treasurer.

Portsmouth, Ohio

The Portsmouth, Ohio, Master Plumbers Association has elected the following officers to lead the association during the 1931-32 term: Charles Barlow, president; Henry Meyer, vice president; and C. A. Rauch, secretary-treasurer.

Dover, N. J.

Strafford Nicolas, of Mt. Arlington, N. J., has been elected president of the Dover, N. J., Master Plumbers Association for the ensuing year. Other officers elected were: A. L. Swackhamer, Dover, vice president; and E. A. Maher, Dover, secretary-treasurer.

Kansas City, Mo.

The Association of Master Plumbers of Kansas City, Mo., recently held its annual meeting and elected the following officers for the year 1931-32: John J. Sherin, president; J. S. Levene, vice president; W. F. Coakley, secretary; and E. A. Kuebler, treasurer. Directors: W. P. Joyce, William R. Dunlap and John Karges.

New Britain, Conn.

The New Britain, Conn., Master Plumbers' Association held its annual meeting on December 10, with ninety per cent of the membership present. The following officers were re-elected to serve the association during

Standing, left to right: Robert Stemper, Charles Pelunek, W. W. Dusold, Jacob Schuh, E. F. Trebs, E. F. Fischer, Edward Thill and L. R. Friend. Seated: O. P. Zimmermann, C. W. Harper, C. C. Voelz, and A. J. Meloy. Photo taken at a picnic given recently by a group of Milwaukee master plumbers

the year 1931-32: William Fenn, president; Fred Loomis, vice president; Arthur J. Kallberg, secretary; and C. A. Hjerpe, treasurer.

Elkhart, Ind.

The Elkhart Sanitary Club, of Elkhart, Ind., has elected the following officers to head the organization during the coming year: F. L. Marchesseau, president; Frank Peoples, vice president; W. M. Freeman, secretary; and F. L. Marchesseau, treasurer.

Hoopeston, Ill.

The Master Plumbers Association of Hoopeston, Ill., has elected the following officers for the year 1931-32: C. W. Murray, president; M. L. Fickle, secretary.

Peoria, Ill.

The Master Plumbers Association of Peoria, Ill., recently elected A. M. Schlehuber as its president for the ensuing year. Other officers elected at the same time were: Lee H. Rose, vice president; Fred Siefert, secre-

Left to right: Daniel O'Flaherty and J. F. O'Flaherty, both of East St. Louis, Ill.; Mrs. and Mr. E. W. Tompkins, Albany, N. Y. Photos taken at the annual convention of the Heating and Piping Contractors National Association, held recently at Louisville

tary; Milt S. Hitchcock, treasurer; and Hugh P. Marshall, manager.

Montclair, N. J.

The Master Plumbers Association of Montclair-Bloomfield-Verona and Vicinity (N. J.) has elected Henry J. Williamson to serve as president of the organization during the 1931-32 term. Henry Weingartner is vice president; Charles J. Samuel, secretary, and Paul Zeim, treasurer.

Champaign-Urbana, Ill.

The Plumbing and Heating Merchants Association of Champaign and Urbana, Ill., has elected John V. Brannigan to serve as president during the ensuing year. William Holmes is vice president of the association; and Helen R. Bean serves as part-time secretary and treasurer.

Gary, Ind.

The Gary, Ind., Society of Sanitary Engineers has elected Fred Eibel to serve as president during the coming year. Ernest L. Liles is secretary of the association.

Paterson, N. J.

The Master Plumbers' Association of Paterson, N. J., has named Andrew J. White as its president for the ensuing year. Other officers of the association are: Joe T. Korver, vice president; William Borduin and Jacob J. Sikkema, secretaries; and Robert A. McBride, treasurer.

◆

South Shore Club Meets in Milwaukee

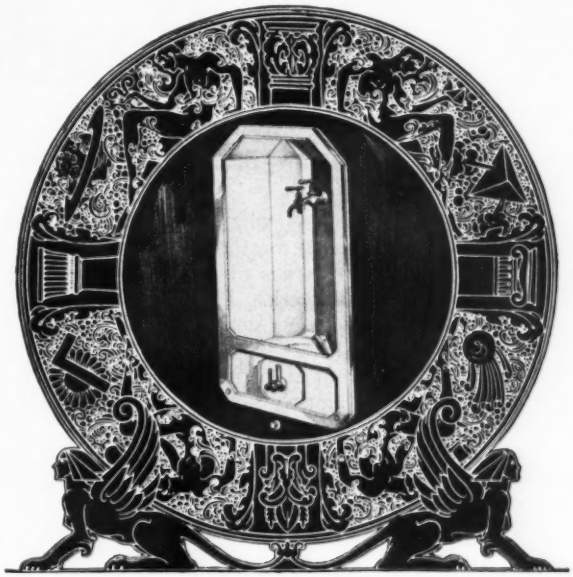
Members of the South Shore Club of Master Plumbers held a meeting at the Builders' Exchange, Milwaukee, Wis., on November 21. A regular round-table business discussion was held. Lewis R. Friend, president of the Wisconsin Master Plumbers' Association, was a guest at the meeting.

The South Shore Club of Master Plumbers includes contractors from Kenosha, Racine, South Milwaukee, Waukesha, and West Bend.

◆

Chicago Oil Burner Association Elects Secretary

At a recent meeting of the Chicago Oil Burner Association, B. W. Ruark was elected secretary to devote time to the organization of a program that will help oil burner dealers and branch offices selling oil burners in the City of Chicago to increase their sales.



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Equipped with the Famous Century Automatic Bubbler, it is undoubtedly the most efficient in all America. The unique Century invention, maintains at all times, regardless of fluctuating water pressure, a normal, wholesome drinking stream. Sudden, splashing gushes of water have been definitely eliminated. The unsanitary, inconvenient trickle is unknown. Each turn of the handle produces a clean, wholesome drink!

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Century Sanitary Drinking Fountains

Our Readers Tell Us

Peddling Bids

To the Editor:

As an aid to our business, why not go after the government to have general contractors name the subbidders, price and list materials which will be used when bidding on government work. This will prevent the terrible bid and price peddling now being so freely done to the definite loss of both subcontractors and material men to the apparent profit of the general contractor, who as a matter of fact is himself a loser through this very peddling.

Let the general contractor not forget that when he is practicing unfair tactics, he will only compel his competitor to do likewise and then they both lose.

Cincinnati, Ohio. (Signed) H. H. Chaplin.

Status of Kansas Anti-Utility Law

To the Editor:

I would like to explain some of the conditions existing in the state of Kansas, in regard to Anti-Utility Merchandising Legislation. The sale of appliances as proposed in DOMESTIC ENGINEERING, I think, is very good and if gas appliances could be sold, and the independent merchants have the full co-operation of the public utility companies, as you suggest, it should be successful.

For your information, I would like to give you some of the conditions in the state of Kansas relative to the sale of merchandise by the public utility companies. The public utility companies have shown a great loss in their merchandising departments which has been produced as evidence in several legal cases in our state. Because of the prices and terms which were offered on merchandise, the public utility companies had practically eliminated competition on all appliances that they offered for sale.

The legislature of the state of Kansas, knowing of the business evils, passed a law prohibiting public utilities engaged in selling heat, gas, water, electricity or electric current from manufacturing or selling at wholesale or retail any chattel article, commodity or manufactured product, except those articles which have been owned by such utility companies in manufacturing, distributing or selling its utility service, or those articles which are the direct product of the business of manufacturing or distributing said utility. The law was generally accepted by the people and was accepted by all public utility companies except one. And after ample time was given to dispose of the merchandise on hand, the law was supposed to go into effect August 1st. We have reason to believe that the public utility companies generally endorsed this law because all salesrooms were closed except those rooms operated by this one company who opposed the law when it went into effect.

An injunction was granted and on October 28th, the court of Shawnee County, in Topeka, decided that the law was constitutional, removed the injunction; and immediately the public utility company appealed to the supreme court of the state of Kansas and will come before this court sometime in the near future.

We in Kansas feel that the decision in our case will mean a great deal to the people of the United States relative to the sale of merchandise by public utility companies.

Co-operation between local merchants and the public utility companies could be a great advancement in the sale of merchandise.

Too much stress cannot be placed on the sales necessity in competition or co-operation by the independent merchant. The master plumbers who co-operate with the public utility companies should improve their sales organization. We must admit that originally the sale of merchandise by the public utility companies was organized because they felt that the independent merchant was not able to sell merchandise in proportion to the utility service offered to the public.

We here in Kansas feel a great responsibility because the servicing and sale of all appliances must be greater and better than our customers have received before.

Winfield, Kans. (Signed) Carl McGregor,
Secretary of Kansas Master Plumbers' Association.

Thank You

To the Editor:

We think you publish the best trade magazine for our industry. You have constructive ideas, and are not afraid to assume leadership. Keep up the good work. Why not publish a series of articles on the plumbers and heating contractors who are cutting prices below cost to get jobs, showing them that they can not create any more work by this method. They are harming the industry as a whole. They make it hard for an honest careful firm to hold its customers.

Yours truly,
Acme Plumbing Co.,
Columbus, Ohio. Per. Ray L. W. Johnson

Present Set-up Needs Changing

To the Editor:

I read your publication with a great deal of interest, and I think you are to be congratulated on some of the editorials, plans and suggestions contained therein. I know that you are sincere in your deductions, but let's get down to common sense and call a spade a spade.

Your editorial of October 17th, "Four Billion Dollars," is good and surely the plumbing and heating contractors should get lots of business and some profit out of it, no doubt the manufacturing end will, but the independent jobber and the contracting plumbing end will not get much. Now let's be frank, the real evil in this industry is the manufacturing jobber, trying to put the independent jobber out of business, and I believe he will do it. This last thought has just come into my mind after analyzing the situation more thoroughly.

It is a natural deduction that the independent jobber

has to make a profit on his wares, but the manufacturing jobber says that he needs the business, to keep his factory going. How in the name of common sense can a plumber operate an established "up to the minute plumbing business, office, showroom and sales people," when the jobbing houses continue to put irresponsible people in business against those already in business in the face of reducing business and sales possibilities. They tear down the possibility of sales. This business can't be straightened out as long as distributing is as it is.

Charles M. Swinnerton's article in your same issue hits the nail right straight on the head. How can a man carry an overhead, necessary to sales and showroom, when he receives no backing from the manufacturing or jobbing source?

Here is a practical example of what happened in my showroom the other day:

Customer: "How much is that heater?" Salesman: "That heater is $50.00" and other sales dialogue.

Customer: "Fifty dollars! That is a ..... heater. I can buy that heater for $30.00." Salesman: "You are mistaken; not that heater; possibly one that looks similar, but not that same heater." Customer: "That same heater; I can show you the bill," and stated how he did it, and said he was also in business, and thought it was a d—— shame, but at the same time we could not blame him for making the saving. I know that man to be a good business man and know what he said is a fact, as I had previously checked the man whom he buys through.

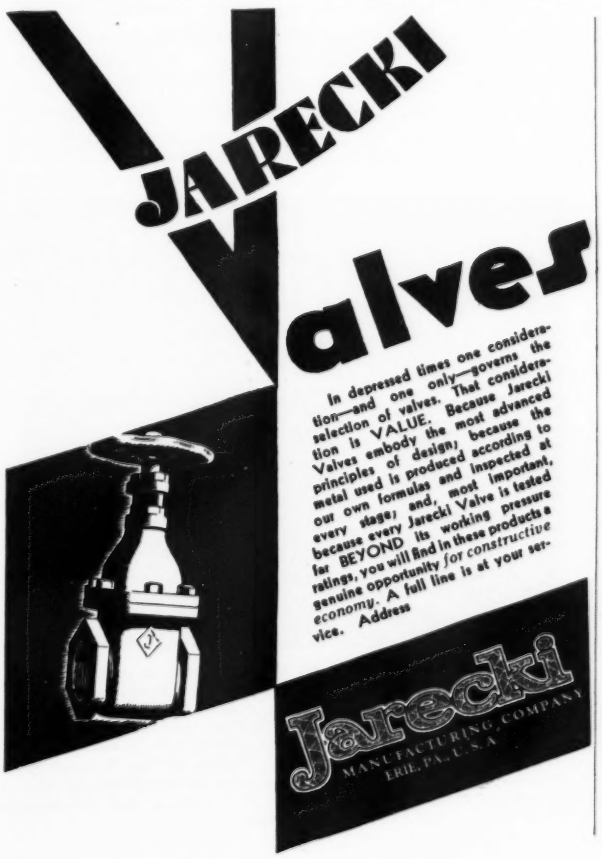
The jobber keeps this kind of stool pigeon in the field and will quote them just as good a price as their best showroom or legitimate customer. There were three such types of operators in our town before jobbing houses came in, but now there are seventeen. Still the jobber offers no protection against such purchases, and I claim without fear of contradiction, that they want just such a purchaser because they can manhandle such folks, as they are more subservient. Before jobbers entered this town, most every plumber was discounting his bills and now I doubt very much whether any of them are, or probably ever will. Ten per cent will not pay overhead, but still the jobber persists in putting on only 10 per cent or handling his affairs so he can only allow 10 per cent.

There is no possibility of sales effort in this business until the set-up is changed. If you think selling is going out and selling your friends or customers at a higher price because they have confidence in you, I don't—nor would any honest industry think so, BUT the higher-ups in the distributing end believe it is. It is just plain *theft* or *malpractice*.

Your guide to selling and remodeling is a wonderful guide in any other business, but not the plumbing business. Under the present set-up there would be too much lost money unless we can get the distributing end in order. Let's work hard and concentrate on that end and I know the other end will right itself. Not a millennium as you say in your editorial, but by hard work from all ends.

Think it over; can you see how it can be done? Now let's be honest—let's not pussyfoot or sidestep.

Yours for a solution for sales as this is what I am most interested in. Our plan to set it in order: First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In depressed times one consideration—and one only—governs the selection of valves. That consideration is VALUE. Because Jarecki Valves embody the most advanced principles of design, because the metal used is produced according to our own formulas and inspected at every stage; and, most important, because every Jarecki Valve is tested for BEYOND its working pressure ratings, you will find in these products a genuine opportunity for constructive economy. A full line is at your service. Address
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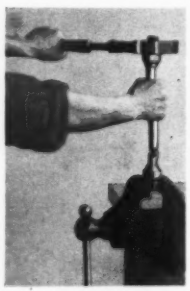
Vibration test set up for 1¼, 1½ and 2" sizes of Hays Double Seal Fittings. Columbia University, New York, N. Y.

Only Hays Double Seal Fittings Could Survive These Tests



Pipe Wrench Test

Apply the pipe wrench test to all makes of compression copper fittings and demonstrate to your own satisfaction the superior strength of the Hays Double Seal fitting.

We went even further and commissioned Columbia University to subject all sizes of Hays Copper Joints to a series of maximum mechanical stresses that we honestly believe no other copper fitting could survive.

The set-up, shown above, provided constant vibration at two points by Tabor Vibrators (28,000 blows per minute at 70 lbs. air pressure). At the same time, steam at 112 lbs. pressure and water at 50 lbs. pressure were alternately introduced in five-minute periods for one and one-half hours. Near the end of this test, heavy weighted wrenches were placed on the tightening nuts in a vain effort to back them off the fitting. Then a torsion test twisted the tubing until it closed but also failed to loosen the joint. In fact, this same joint immediately withstood a hydraulic test of 2,235 lbs. per square inch.

Insist upon Hays Double Seal Copper Fittings. Your copper plumbing and service lines will go in easier and there will be no regrets. Send for complete test data and Catalog No. 3.

HAYS MFG. CO., ERIE, PA.

HAYS

DOUBLE SEAL CONNECTIONS

the manufacturing jobber, then the independent jobber who will be only too glad to fall in line, then the plumber will be in line. Then to figure out the possibilities of a locality and when the field is amply covered by progressive and aggressive dealers, don't put more in that territory, as it only tends to demoralize and weaken the others' credit position and the losses are greater. It also tends to create suspicion, mistrust, and lack of confidence.

The public doesn't look with admiration on a lot of broken men, but does on successes. Be *honest;* don't you think you would have more confidence in a piece of merchandise coming out of a reputable mail order house with a money back guarantee than out of a broke plumbing shop, unless the price difference was very great? I am convinced that this is our trouble. Make the men that represent the plumbing business look like their guarantees mean as much as the mail order house and you will change the picture. The mail order house will fall by the wayside.

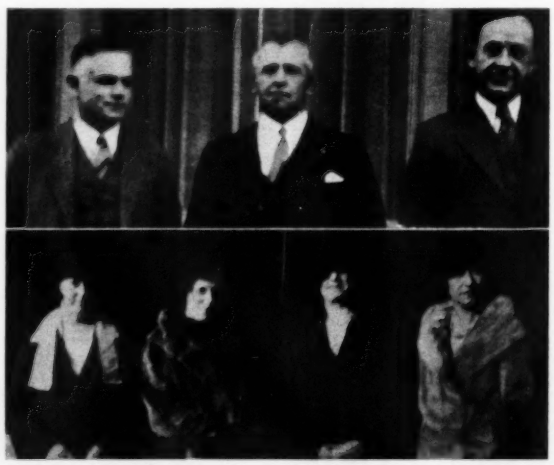
As a matter of fact, my candid opinion is that the mail order houses are using the plumbing business as a stepping stone or a camouflage by putting cheap prices on plumbing to lead the customer on, but if the plumber was put into a position to buy with confidence he could make them back water, but the fight can not be won on the present set-up.

(Signed) Albert J. Coburn,
Beaumont, Tex.

◆

London Engineers Hold Sessional Meeting

The Institution of Heating and Ventilating Engineers of London, England, held a regular sessional meeting on the evening of December 2, according to word just received from H. B. Watt, secretary. The principal address of the evening was made by A. H. Barker, who read a paper entitled, "The Principles of Calculation of Low Temperature Radiant Heating." Mr. Barker is a past president of the organization.



Top picture, left to right: W. Herbert Graham of Oakland; P. E. Brand of Redwood City, president, Peninsula association; Harry G. Newman of Oakland, vice president, Northern California Federation. Bottom picture: Mesdames J. H. Jevons of Berkeley, N. Cohen of San Francisco, B. T. Schullerts of Berkeley and J. V. Young of San Francisco. Photos taken at the recent meeting in Berkeley of the Northern California Federation of Plumbing and Heating Industries

ANSWERED

A few of the Questions of most general interest asked by readers and answered by our engineers

In this issue

1—About Return Traps for Vapor Heating Systems

2—How to Caulk Thin Soil Pipe

3—How to Determine the Correct Size of a Heating Boiler

—1—

To the Editor:

Some time ago in some article in one of your issues, it was stated that a return trap for vapor systems could be had which would operate on a system where there was only an 8-in. difference between the water line and the return. Will you kindly give me further information about this trap? All the makes with which I am familiar require, I believe, a greater distance.

Wisconsin. W. E. W.

The direct return trap, such as is ordinarily used on vapor systems for returning the water of condensation back to the boiler against the boiler pressure when such is higher than the atmosphere, embodies some basic principles which must be adhered to if successful operation is to be obtained. There is some confusion in the minds of many as to just how these traps operate and what requirements must be met to insure satisfactory service. Our correspondent has asked his question in a way which would seem to indicate that he thought the elevation of the trap is dependent on the elevation of the return; if we are correct in this, our correspondent is laboring under a misapprehension as the level of the return has nothing to do with the operation of the trap as will be seen by referring to Fig. 1 where a typical direct return trap and its connections are indicated.

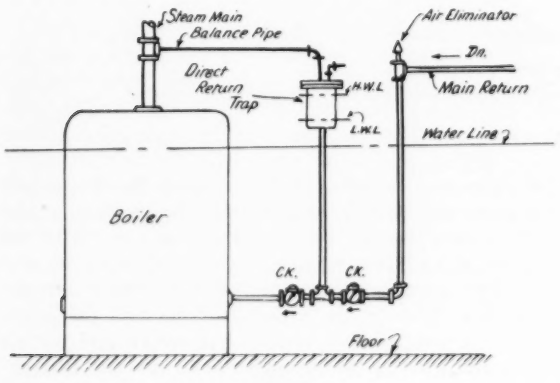


Fig. 1

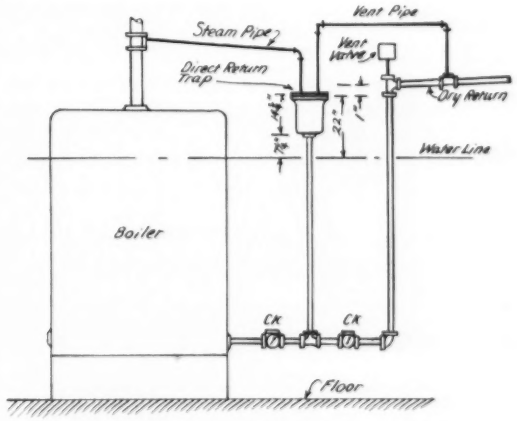


Fig. 2

It will be seen here that the trap is placed slightly above the water line of the boiler and this feature must be adhered to in order to have the water contained in the trap pass down into the boiler by gravity when the pressures are balanced by admitting steam into the top of the trap from the boiler header. The return main, however, will be seen to come into the trap section as a wet return and is deliberately vented and dropped so as to deliver nothing but water to the trap through the first check valve. When pressure is on the boiler, the second check—that is the check next to the boiler—is held shut

by the boiler pressure and the water coming back rises up in the vertical pipe and accumulates in the trap between the low water line (L.W.L.) and the high water line (H.W.L.) indicated.

When the water level in the trap reaches the high water line a float, or some similar device, opens the valve controlling the steam balancing pipe and closes a valve controlling the vent; the steam rushes into the

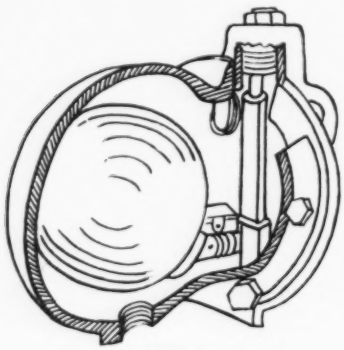


Fig. 3

top of the trap and builds up a pressure there equal to the steam pressure on the boiler. The trap now is full of water with equal pressures both on the bottom where the water enters the boiler and on the top of the water. As the water in the trap is standing at a higher level than it is in the boiler and as all pressures are balanced it naturally follows that the water in the trap opens the check into the return connection of the boiler and sinks down until it reaches the low water level in the trap at which time the valve on the steam balancing pipe closes and the valve on the vent pipe opens relieving the pressure on the top of the trap so that more condensation may enter. The trap then is ready to repeat the cycle.

The question now becomes how close to the water line of the boiler may the bottom of the trap be placed? Let the trap illustrated in Fig. 2 be now considered. The trap shown is 14¾ in. high and is set with the top 22 in., above the water line of the boiler; it will be seen that this leaves the bottom of the trap 7¼ in. above the water line of the boiler and the center line of the dry return has been indicated as about 1 in. above the top of the trap which will bring the bottom of the dry return just about level with the top of the trap. The manufacturer states in regard to the installation of this trap that the air is vented through a float vent valve (air eliminator) and during the high pressure periods water of condensation will flow through the first check valve (the check farthest from the boiler) and up into the direct return trap; this direct return trap is at the same pressure as the dry return line because the top of the trap is connected through the vent pipe into the dry return line. Consequently the water will rise up into the body of the trap, lifting the float until it reaches the top and opens the steam valve closing the vent valve at the same time. Then there is the same pressure in the trap as exists in the boiler and the water will flow by gravity down into the boiler through the second check due to the fact that the top of the trap is 22 in. above the boiler water line and the bottom of the trap is 7¾ in. above the same line.

An interior view of this particular trap is shown in Fig. 3 but these traps are made in a variety of designs as will be found by referring to the catalogs of various manufacturers. For example another manufacturer will ask for 24 in. to 32 in. from the boiler water line to the top of his trap but is perfectly willing to guarantee a satisfactory operation when the bottom of the trap is kept 8 in. above the boiler water line. So here are two manufacturers, at least, who are willing to guarantee operation with the trap bottom set 8 in. above the boiler water line and we think this is what was referred to in the article mentioned by our correspondent because the height that the return line must be kept (that is the dry return) is governed by the height of the water rise in the trap; that is to say, the high water line in the trap must be low enough not to flood the dry return line as the trap fills.

It is our opinion that, with only a difference of 8 in. between the lowest point of the dry return and the boiler water line, a direct return trap of the float type could not be successfully operated because the bottom of the trap itself must be kept up this distance above the boiler water line and the rising of the water in the trap would be sufficient to flood the return before the trap was full enough to operate. There is a solution which could be applied in such a case and this to drop the dry return at a point far enough back on the line so that, at the point of drop, the level of the dry return would be the same as that of the top of the trap and then run wet from there to the trap. Any returns coming into the return line between the point of drop and the boiler could be connected both to the wet return and the air line, the air passing out through the air line and the condensation dropping down into the wet return. How this

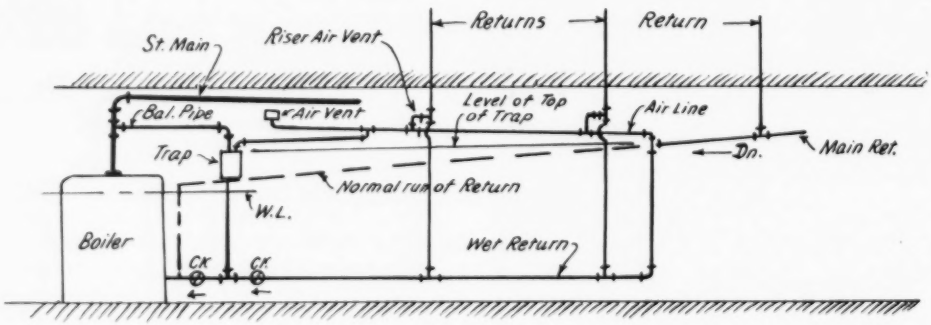


Fig. 4

could be done is illustrated diagrammatically in Fig. 4.

The reason the direct return trap cannot well be lowered so as to be less than 8 in. above the boiler water line consists of the fact that the height of the trap governs the head on the water when it returns to the boiler from the trap and this head has to be sufficient not only to move the water with reasonable rapidity but also must be sufficient to overcome the resistance of the second check valve which usually is considered as requiring from 2 to 4 in. of head alone. All things considered it would be better practice to set the direct return trap a little higher than it would be to just keep it at the minimum height at which it will work. The higher this trap is set the quicker it will free itself from water and the more positive will be its operation.

—2—

To the Editor:

I have to caulk some soil pipe for a water test. This pipe is very thin, and I fear it will not stand much caulking. Kindly give me your advice on this problem.

Michigan. W. E.

When the oakum is caulked into the hub, pour in the lead completely in one pour. The lead should be hot for this purpose. Next allow the lead and hub to cool completely after which you should caulk the lead with a light iron and a light hammer. It is not necessary to pound the lead very hard, because, when this is done, it strains the hub to the point where cracking often results. Also, in order to make a satisfactory caulked joint without excessive pounding, the caulking tools should be sharp.

If you caulk the joint before the hub and lead are cooled, the hub will contract when it does cool, and this will set up excessive strain in it, causing it to split. A parallel case is found in the old practice of putting steel rims on wooden wagon wheels. The rims were heated so that they would slip on the wheel easily and then when they cooled, they made a tight joint. In the same way, the hub shrinks when it is cooled and if the lead will not allow this shrinkage to occur because of being caulked too tight, then something will have to give and in most cases it is the hub which splits. The important thing to remember is that it is not necessary to pound the lead with a heavy hammer after the joint has cooled.

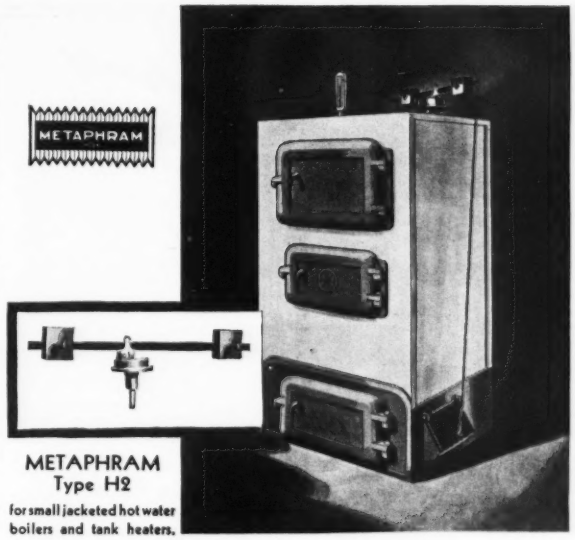
—3—

To the Editor:

I have a problem with regard to a private swimming pool, on which I need some help from you.

A pool 20x40 ft., with an average depth of 7 ft. of water, is to be constructed on a private estate near the ocean. It is desired to pump salt water into the pool and to heat it. If the boiler in the residence heating plant should be large enough, it will be used for heating the water. In pumping it will be necessary to raise the water 300 ft. in a run of 600 ft. The temperature of the ocean water is close to 50 deg. Fahr., and it is desired to raise the temperature so that the pool will be approximately 65 deg. Fahr. Electric power will be used to operate the pumps.

If the house heating boiler proves to be too small, it will be possible to recommend a separate boiler for heat-



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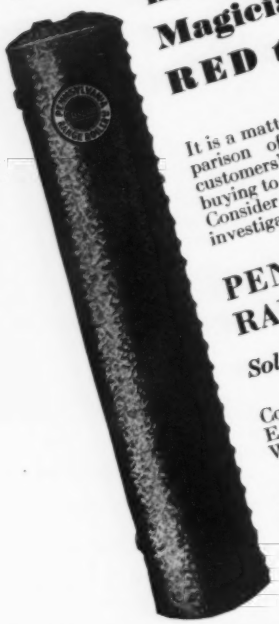

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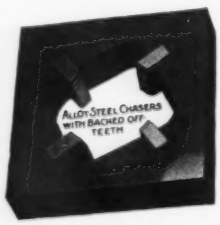

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ing the pool water. In any case the boiler or boilers will use oil for fuel.

Kindly give me your recommendation on both pump and heating arrangement, bearing in mind that salt water is to be handled.

State of Washington. K. F. M.

The only satisfactory way of handling a salt water pool located 300 ft. above sea level is by means of a separate pumping system to raise the water to the pool. The pump should be located approximately at sea level and need have a capacity only large enough for filling and make-up requirements.

I believe that, if you will allow 24 hours for filling the pool, this will prove satisfactory.

A separate low-head pump and circulation system adjacent to the pool should be used.

For heating it is advisable to use a tubular type of hot water generator, which can be operated from the house heating boiler, if the latter is large enough.

An article in the November 29, 1930, issue of DOMESTIC ENGINEERING on a salt water swimming pool at Palos Verdes, California, will no doubt give correspondent a number of ideas on the general arrangement of a piping and circulation system for a swimming pool.

Questions Answered and Discussed by Readers

How the Question Was Answered

The following question was asked in the issue of December 12, and the accompanying answer is by a reader:

An electric pressure water supply system is installed in the basement of a home. An electric light is to be installed above it. The requirements are that the pump be operated independently either by a switch up-stairs or by one at the motor. Also, the light is to be taken from the same circuit and is to be operated by a pull chain socket. What is the minimum wiring necessary?

How Would You Answer This Question?

If the water pressure on the street main is 75 lb. and the highest fixture in the building is located 30 ft. above the level of the main, what will be the minimum water pressure at the fixture if the water meter loss is 20 lb. and the pipe friction during the time of the maximum flow is 10 lb.? Also, what is the pressure at the fixture when no water is being used?

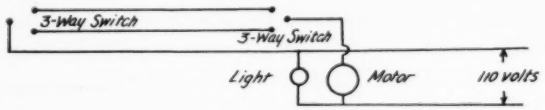
Answers based upon your experience, and suitable, will be paid for and published in the February 6 issue.

—1—

THE question calls for a switch upstairs and a switch at the motor, either of which may be used for stopping or starting it. Obviously, this requires two three-way switches. On this simple circuit alone, then, three wires are necessary. One wire is the ground and the other two wires are used alternately as hot wires, depending upon how the switches are thrown. The work light over the motor is the item which changes the lay-

out from a simple system to one which has some complications. The requirement is that power be available at the light at all times regardless of whether or not the motor is running. In this there are two possibilities. If the power is taken from the upstairs switch side, four wires must be run to the basement motor and light. On the other hand, if the power lines are brought in at the basement and run first to the motor and then to the upstairs switch, only three lines are necessary. The accompanying sketch shows this latter condition.

The power is considered to be wired first to the basement unit. Note that the light is hooked-up across the lines in parallel so that current is available at all times for this. It is operated by a pull chain socket at the light. The common ground is hooked to one terminal of the



motor and the other terminal is hooked to one pole of the three-way switch located at the motor.

Notice that the three-way switches are so constructed that one of the two lines between them is always open while the other is hot. It might be argued that it never would be necessary to run four lines between the remote switch and the unit because the power usually is taken in at the basement. It would if the pump and light were located in a pit removed from the building containing the remote switch and the meter board. Then, it would be most economical, in all probability, to run the power lines through the conduit to the upstairs switch and thence through the single conduit to the motor and light.

◆

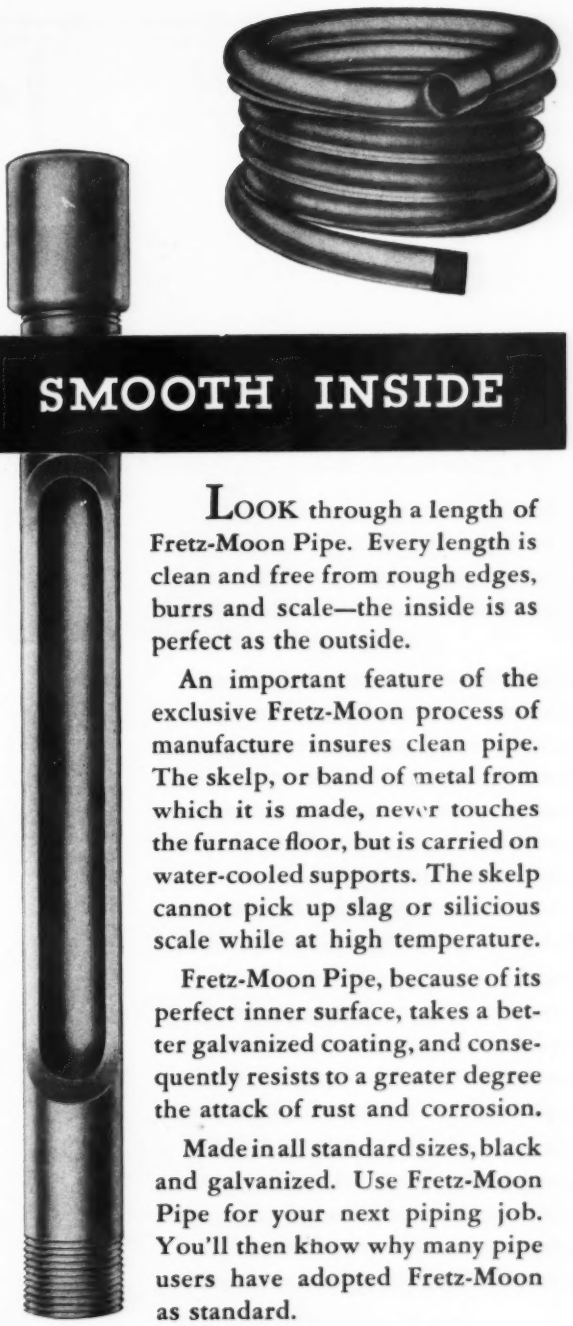
Committee of Ten Holds Year End Meeting

With every co-operating industry except one represented, the Committee of Ten held its final meeting of the calendar year at the Union League Club, Chicago, recently. Chairman J. H. Walker, of the research committee, presented a report covering current research in coal and its utilization and suggested that the committee might devote some attention to the use of coal in connection with the silica-gel system of air conditioning. The Research Committee was requested to assemble available data in that connection and make report for consideration at the next general meeting.

The appointment of a special committee was authorized to consider ways and means of conducting an exhibition of coal heating in connection with the annual meeting of the National Coal Association which is expected to be held next spring.

The report of the local meetings committee showed that preliminary steps had been taken since the previous meeting for the organization of local co-operating groups in St. Louis, Cleveland and Pittsburgh, and told of plans for similar activities in Milwaukee, Knoxville, Louisville, Birmingham, Baltimore and Charleston, W. Va.

By unanimous vote, Chairman Glover was authorized to call the next meeting of the committee at Cleveland in conjunction with the annual convention of the American Society of Heating and Ventilating Engineers. The Society meeting is scheduled for January 25-29, 1932.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Heating in Residences and Small Structures

(Continued from Page 33)

the distance which the steam main must be kept above the water line. At first inspection it might seem that as long as the far (low) end of the steam main actually was above the water line of the boiler there would be no occasion to worry because what would cause the water to rise above its own level in the boiler? It will be noted that in Fig. 24, a distance of 18 in. is shown between the boiler water line and the bottom of the steam main and this is the figure most frequently allowed, but there are cases where it might not be enough and still other cases where 12 in. can be made to do and, possibly, even slightly less.

It must be remembered that when any medium—be it steam, water or air—flows through a pipe there is a

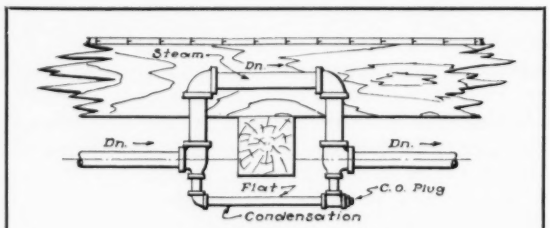

Fig. 30

TABLE XII
Standard Tappings for One-Pipe Steam Radiators

Size of Radiator, Square Feet	Tapping, In. Diam.
0 to 24	1
25 to 60	1¼
Over 61	1½

certain amount of rubbing on the sides of the pipe which is termed friction and this rubbing tends to retard the flow of the medium. Hence the medium has to start off on its travel with a slightly higher pressure than that with which it finishes its flow, and the difference between these two pressures has been used up in friction and is known as the friction, or pipe loss. Now if the steam started off at the boiler end of the main with a half pound pressure and finished up at the far end of the main with one-quarter pound pressure it is plain that the friction loss in the main is one-half pound less one-quarter pound or one-quarter pound. Under these conditions there would be a half pound per sq. in. pressure on top of the water in the boiler and only one-quarter pound per sq. in., on top of the water in the wet return. As a result, the extra quarter pound of pressure in the boiler backs up the water in the wet return until sufficient vertical head is created, in the far end of the wet return, to counterbalance this difference in steam pressure. To this is added still another small amount of rise this being sufficient to overcome the friction of the water flowing through the return pipe back to the boiler. Ordinarily this latter amount of head is so small that it is neglected but it is there just the same.

Now a column of water one foot high produces a

pressure or head at the bottom of 0.43 lb., so that to counterbalance a difference in pressure of one-quarter pound the height of water required will be:

$$\frac{0.25 \text{ lb.} \times 12 \text{ in.}}{0.43 \text{ lb.}} \text{ or } 7 \text{ in.}$$

and this is with only one-quarter pound friction drop. With one-half pound friction drop the rise would be

TABLE XIII
Capacities of One-Pipe Steam Risers—Upfeed

Size of Riser Nom. Pipe Diam., In.	Equivalent Square Feet of Steam Radiation at 240 Btu.
¾	25
1	45
1¼	98
1½	152
2	288
2½	464
3	800
4	1520

Note—Above table from American Society of Heating and Ventilating Engineers' Guide—1931.

doubled, or 14 in., and so 18 in., is used as a safe and conservative figure, it being quite enough for the ordinary system. When headroom conditions make it impossible to raise the main sufficiently to get this desirable 18 in., special main sizing will allow this figure to be reduced as will be shown when the subject of main sizing is taken up.

Riser and Radiator Connection Sizes

The standard tappings—or rather the standard sizes of bushings which are put in the tappings of one-pipe steam

TABLE XIV
Capacity of Horizontal Runouts in One-Pipe Gravity Steam System

Size of Runout Nom. Pipe Diam. In.	Equivalent Square Feet of Steam Radiation at 240 Btu.
1	20
1¼	55
1½	81
2	165
2½	260
3	475
4	1110

Note—On runouts over 8 ft. long increase pipe one size. Pitch of pipe not less than ½ in. in 10 ft.
Above table from American Society of Heating and Ventilating Engineers' Guide—1931.

radiators—are given in Table XII and the number of square feet of equivalent direct radiator surface allowable on each size of riser is shown in Table XIII. This is for the usual up-feed riser. All that is done is to start at the top of each riser, make the radiator connection the full size of the standard radiator tapping, add up the radiation as the riser feeds more and more as the bottom is approached until at the bottom the entire amount of E.D.R. on the riser is obtained for sizing the runout. Of course the size of the riser after taking

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in each radiator connection is increased according to the schedule in Table XIII.

Runout, Main and Return Sizing

The runouts from the steam main to the riser—assuming that the system is an ordinary one with no drips on the risers—may be sized from Table XIV. It must be noted that when runouts exceed 8 ft., in length the pipe should be increased one size, the reason for this having been previously explained. The steam main should be sized from Table XV except that it is not advisable to use a main with the large end at the boiler less than 2-in., in size. Also that with a main starting off at the boiler 2½-in., or over, the main should not be reduced to less than 2-in., at the far end. When out on the job and it is desired to size a line quickly without a table being handy there is an old rule of thumb which says that the diameter of the steam pipe will be 1/9 or the square root of the E.D.R. Thus in a job having 400 sq. ft. the diameter of the steam pipe by this rule would be 1/9 of 20 or 2¼-in., making a 2½-in. pipe necessary. The allowable load on each size of pipe has been worked out according to this rule and is shown in Table XVI which, on being compared with the regular table, shows that the rule of thumb gives more conservative allowances in every case except for 1 in., and 1¼ in. pipe.

TABLE XV
Capacity of Steam Mains for One-Pipe Steam System

Size of Main Nom. Pipe Diam., In.	Equivalent Square Feet of Steam Radiation at 240 Btu.
*1	56
*1¼	122
*1½	190
2	386
2½	635
3	1163
4	2457

*It is not recommended to make the end of the steam main at the boiler less than 2 in., and, when the main at the boiler end is over 2½ in. in size, it is not recommended to make the small end less than 2½ in.
Based on 1 oz. loss per 100 feet of equivalent length of run.
Above table from American Society of Heating and Ventilating Engineers' Guide—1931.

TABLE XVI
Capacities of Steam Mains and Risers of a Gravity One-Pipe System Based on One-Ninth of the Square Root of the Radiation

Size of Steam Pipe Nom. Pipe Diam. In.	Equivalent Square Feet of Steam Radiation at 240 Btu.
1	81
1¼	121
1½	169
2	324
2½	506
3	729
4	1296

The wet return has an enormous capacity, this being due to the fact that it carries only water entirely without air or steam. Table XVII gives the allowable loads

in E.D.R. for various sizes of pipe used as wet returns. It has been pointed out that the use of a dry return should be avoided wherever possible but in some cases structural considerations make a certain amount of dry

TABLE XVII
Capacity of Wet Return Mains on One-Pipe Gravity Steam Systems

Size of Return Nom. Pipe Diam. In.	Equivalent Square Feet of Steam Radiation at 240 Btu.
1	700
1¼	1200
1½	1900
2	4000

Note—Above table from American Society of Heating and Ventilating Engineers' Guide—1931.

return necessary and in such contingencies the dry return should be sized according to the schedule given in Table XVIII. In crossing a girder, for instance, by jumping the steam main over the top and carrying a line down below to handle the condensation, in the manner illustrated in Fig. 30, the steam pipe over the top should be kept full size and the condensation line under the bottom of the girder may be sized as a wet return based on the E.D.R. located between the boiler and the girder. For example, in a system with 800 sq. ft. the main starts

TABLE XVIII
Capacity of Dry Return Mains on One-Pipe Gravity Steam System

Size of Return Nom. Pipe Diam. In.	Equivalent Square Feet of Steam Radiation at 240 Btu.
1	320
1¼	670
1½	1058
2	2300
2½	3800

Note—Above table from American Society of Heating and Ventilating Engineers' Guide—1931.

off at the boiler and supplies 300 sq. ft., after which it crosses a girder in the manner just described. What will be the size of the steam pipe over the girder and what would be the size of the condensate pipe running under the girder?

The main where it crosses the girder is carrying 800 sq. ft.—300 sq. ft. or 500 sq. ft.

and, therefore, by referring to Table XV, it will be seen that the size of the steam pipe will be 2½ in. The condensate line has 300 sq. ft., located and fed from the steam main between the girder and the boiler; therefore the condensate line is carrying the condensate from 300 sq. ft. of radiation and is doing this as a wet return. Referring to Table XVII, it will be seen that a 1-in. pipe would be sufficient. Probably a 1½-in. pipe would be used in this case, due to mechanical strength.

◆

Minneapolis, Minn.—The Minneapolis Board of Public Welfare, A. C. Bolstad, secretary, plans the construction of a three-story women's detention home at the city workhouse at Parker's Lake, to cost $350,000.

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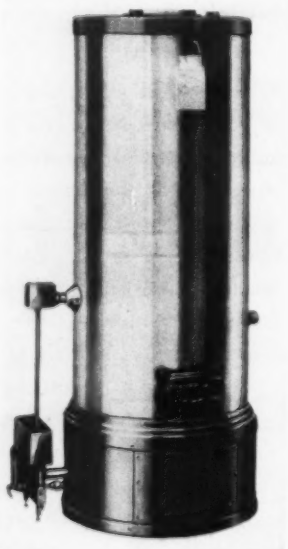
A Water Heater Which Burns Oil

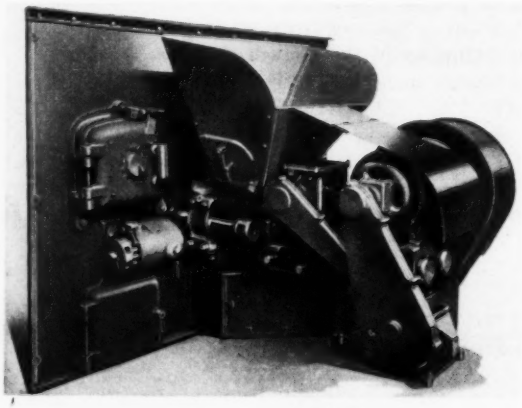
A line of storage water heaters which burn oil has been placed on the market. They have been developed



in three sizes designed to cover the range of domestic and commercial use. The pilot also burns oil. The report is that they have been listed as standard by the Underwriters' Laboratories. No coils are used. The design includes fire tubes. The smallest unit has a self-contained storage of 20 gallons with a rated heating capacity of 25 gallons per hour with an 80 degree rise. The second size has a storage capacity of 40 gallons and a rated heating capacity of 50 gallons per hour. It has been designed to be used with auxiliary water storage up to 300 gallons. The third size is 300 gallons.

An Electric Drive For Stokers

An electric drive has been announced for two types of the underfeed stoker shown in the accompanying illustration. The development was made so that the stokers in question could be applied to plants not carrying a sufficiently high steam pressure to use the steam drive formerly employed.



Hack Saw Blade for Heavy Duty

According to a recent news release, a hack saw blade designed for heavy duty has been placed on the market. The features upon which claims for distinction are made are incorporated in the kind of metal used and in the heat treating of it.

Readers will find in this department news of our industry's progress in the manufacture of equipment. You can read of the efforts of manufacturers to develop products which will increase customer demand, will make shop methods more efficient and will simplify installation.

A letter to the editor of "Domestic Engineering" will bring you the name and address of the manufacturer of any product in which you are interested.

Oklahoma Contractor Receives $350,000 Contract

The A. F. Binns Co., Inc., plumbing and heating contracting firm of Oklahoma City, Okla., is busy on a number of large contracts. This company has received the plumbing, heating and stationary vacuum system contracts for the new Oklahoma-Biltmore hotel. The hotel will have 620 bathrooms, and the plumbing and heating contract amounts to approximately $350,000. It is reported to be the largest contract of its kind in the entire state.

The Binns company also has the plumbing and heating contract on the Y. W. C. A., and also the plumbing and heating on St. Anthony's hospital. All three projects are in Oklahoma City.

◆

Offers Noise Consulting Service

The Maxim Silencer Co., Hartford, Conn., has established, as an addition to its regular business, a consulting service which will specialize in the solution of noise problems. It is headed by Dr. Hiram Percy Maxim, the inventor of the Maxim Silencer, and will have at its disposal the services of the entire engineering and research staffs of the company.

"This may mark the beginning of a new division of engineering, probably to become known as noise engineering," according to Dr. Maxim. The Maxim noise consulting service will make available to engineers, twenty years of specialized experience in working out solutions for every kind of a noise problem.

Humidification for Residences

(Continued from Page 37)

in the shields for this type of radiator was 6 in., the total water surface represented by such pans would be approximately 15 sq. ft. The room temperatures used on the tests with the 26-in. radiator were not lower than 76 deg. Fahr. Hence, if the radiators were installed in a residence with a room temperature of 70 deg. Fahr. the water temperature must be represented by the lower range of the curve in Fig. 6. It could not reasonably be above 105 deg. Fahr. At this temperature the evaporative rate would be 0.235 lb. per sq. ft. per hour, or 10.2 gallons per 24 hours. The rate required for the Research Residence in order to give a relative humidity of 40 per cent was 18.7 gallons per 24 hours, from all sources. Hence, the water pans used in shields on 26-in. radiators would not prove entirely adequate, unless other sources of water vapor existed, although a calculation based on one air change per hour indicates that they would be sufficient to give a relative humidity of approximately 23 per cent on a zero day. It is not probable that they would be more effective on higher radiators because the number of sections required for the same number of square feet of radiation, and accordingly the area of water surface would be less. It is also doubtful whether increasing the water surface by using lower radiators would be effective, because the water temperature would be less with the lower radiator.

◆

T. J. Murphy of Eldorado, Kans., has the plumbing and heating contract on the Elk's Memorial home, in Eldorado.

DART UNIONS

Dart Unions offer distinguished service because of their extra strength. The extra heavy nut and shoulders give added strength, making for longer life.

We guarantee DART UNIONS because after all these years we know what to expect from them—we know what goes into them and what kind of service comes out of them.

TWO Bronze to Bronze Seats

E. M. DART MFG. CO. :: Providence, R. I.

The Fairbanks Co., Sales Agents
Canadian Factory: Dart Union Co., Limited, Toronto, Canada

Fig. 1941 Taber Midget Sump Pump

It works . . . . . .
when needed most

After heavy rain-storms there is an increased demand for Taber automatic Midget Sump Pumps. Frequently they replace "low price" cellar drainers inadequately motored.

Why wait for a peak load to tell whether the pump will work? Avoid troublesome, profitless service calls . . . install Taber first. The owner of any sump pump expects "Dry Cellar Insurance." He gets it with a Taber Midget.

Bulletin and prices on request. Also see Page 923 Domestic Engineering Catalog.

TABER
TABER PUMP CO *Est 1859*
290 Elm Street, Buffalo, New York

Stop this!

Eliminate those unexpected "shots" of hot and cold water in shower baths. Stop the time wasted in trying to get water at the right temperature. Install Powers Mixers. Write for 20-page book.

THE POWERS REGULATOR CO.
2716 Greenview Ave., Chicago
Offices in 37 Cities

with The
POWERS
SHOWER MIXER

RIDGID
The Wrench with the Unbreakable Housing

Replaceable heel jaw . . . full floating hook jaw . . . an adjusting nut that turns easily in open housing . . . instant grip . . . no slipping . . . instant let-go . . . and now, *double* its old strength. See the RIDGID at your Jobbers.

THE RIDGE TOOL COMPANY, Elyria, Ohio

Large Construction Projects

Even though new construction is at a low ebb compared with recent peak years, the fact remains that new projects are being started every day. Listed below are just a few of the larger building operations, either contemplated or only recently started.

Port Edwards, Wis.—This city will construct a new $125,000 senior high school in 1932. Childs and Smith, Chicago, Ill., are the architects.

Ypsilanti, Mich.—The Ford Motor Co. has taken out a permit to construct a $150,000 factory building here.

Philadelphia, Pa.—Cramp & Co. will build a three-story structure at 32nd and Tasker streets, at a cost of $315,817; while the Kober Construction Co. has the general contract for a two-story building at Rising Sun and Cheltenham avenues, to cost $135,000.

New York, N. Y.—New York University has plans for a $30,000,000 program of expansion, including a number of large new buildings ranging in cost from $4,000,000 to $17,000,000.

Washington, D. C.—Bids will be opened January 12 for construction of the $6,500,000 addition to the Library of Congress. Pierson & Wilson of Washington, are the architects.

Little Traverse Bay, Mich.—Charles Hansen, Petoskey architect, is completing revised plans for a 45-room hotel, estimated to cost $250,000, to be built here for the Bayview Hotel Co.

Battle Creek, Mich.—The board of education is contemplating the erection of a two-story junior high school, at an estimated cost of $350,000.

New York, N. Y.—Plans have been filed for a $4,400,000 unit addition to Hunter College, Thompson, Holmes, Converse & Myers are the architects.

St. Louis, Mo.—Work is expected to start April 1 on the new municipal auditorium.

Glencoe, Minn.—Bond issue for the construction of a three-story junior and senior high school, to cost $250,000, voted on at special election Dec. 3, carried. Plans will be under way at once. George Pass & Son and P. T. Rockey, Eckle building, Mankato, Minn., are the architects. Rose & Harris, 412 Oak Grove, Minneapolis, are the mechanical engineers.

Vermillion, S. D.—Bids will be taken in January for the construction of a three-story fraternity house for the Delta Tau Delta fraternity at the University of South Dakota. Hugill & Blatherwick, 367 Boyce-Greeley building, Sioux Falls, are the architects.

New Haven, Conn.—The First Methodist Episcopal Church has engaged the Methodist Bureau of Architecture to prepare plans for a new church, to cost $250,000. Prof. Charles F. Scott of the Sheffield Scientific School is chairman of the plans committee.

Norwalk, Ohio—Baker & Palfi, Ravenna, will erect a theater here to cost $100,000. Edward Vane, Cuyahoga Falls, is the architect.

Sioux Falls, S. D.—Plans have been made for the completion of a high school project to cost $600,000, to be four stories high and to contain 23 class rooms. Perkins & McWayne, 322 Paulton Block, Sioux Falls, are the architects.

Des Moines, Ia.—Plans are completed for a two-story office building for the Union Mutual Life Insurance Co., to be built at Clife Road and city limits at a cost of $200,000.

Madison, Wis.—Plans are being prepared for remodeling and an addition to the Lloyd-Jones Sisters' Co-educational Home School, to cost $250,000.

Two Rivers, Wis.—Plans are being made and bids will be taken early in February for a postoffice here to cost about $150,000. Geo. Schiry & Sons, 735 North Water street, Milwaukee, are the architects.

Davenport, Iowa—Bids will be taken in January for the construction of a three-story postoffice building to cost $655,000, to be built at Fourth street and Perry avenue.

Group picture taken at the dinner given recently by the Brooklyn Union Gas Co. for plumbing and heating dealers of Brooklyn and Queens, N. Y. The affair was attended by approximately two hundred dealers, and a complete report on the meeting appeared in our issue of December 12

Seth J. Temple, Union Bank building, Davenport, is the architect.

Freeport, Ill.—The Board of Hospitals and Homes of the Methodist Episcopal church plans the construction of a three-story, 50-bed capacity hospital addition here to cost $150,000. Dr. E. M. Claybourne is superintendent of the hospital.

Ithaca, N. Y.—Cornell University will erect a new men's dormitory, costing $100,000, made possible through the gift of the Mennen family of Newark, N. J., to be known as Mennen Hall.

King Ferry, N. Y.—A new high school, costing $170,000, will be built here early in 1932, it has been announced.

Hartford, Conn.—The Regional Planning Commission reports needed extensions to the city sewer system and the construction of a filtration plant, preliminary estimates for which were made by Roscoe N. Clark, city engineer, and places the cost at approximately $3,750,000.

Newton, Mass.—Henry & Richmond, 12 West street, Boston, is preparing plans for $250,000 theater and store building to be erected at 1300 Washington street for the Garden City Auditorium, Inc.

South Hadley, Mass.—The office of Hollis French, 210 South street, Boston, has been retained to prepare plans for a two-story brick boiler house, to cost $200,000. Equipment will include three 350 h.p. water tube boilers, and the project is planned for Mt. Holyoke College, Mary E. Woolley, president.

Springfield, Mass.—The General Electric Co., Pittsfield, Mass., has plans for a sales and service station at 278 King street, to cost $200,000.

South Portland, Me.—A new 2-story wing is to be added to the high school at Ocean street and Broadway, at a cost of $150,000. L. C. Day is superintendent of schools. An architect will be selected to prepare the plans in the spring.

Chicopee, Mass.—A 1932 building program is being planned by this city involving the construction of a grade school, Chicopee street; Junior High school, Fairview avenue, and a trade school on Front street. Two fire stations will also be built during the year. The projects will cost more than $600,000.

Westfield, Mass.—Included in its budget for public building this city has allotted $25,000 for a comfort station.

Cambridge, Mass.—Bids were received until Jan. 5 for the new Rindge Technical high school to be erected on Broadway, at a cost of $1,150,000. Ralph Harrington Doane, Boston, is architect and Stone Underhill Co., 171 Harrison avenue, Boston, is the heating and ventilating engineer.

Pittsfield, Mass.—St. Luke's Hospital, 399 East street, is to have a new maternity unit and a nurses' home which is to be erected during 1932. The architect has not been selected.

Cleveland, Ohio.—Plans for complete remodeling and re-equipping of Hotel Winton, at an estimated cost of $700,000, have been announced, following sale of the property to the Metropolitan Life Insurance Co. Lundoff-Bicknell, Cleveland, have the general contract.

Irwin, Pa.—C. P. Welty, plumbing and heating contractor, has received a contract from the North Huntingdon Township board of education to install plumbing fixtures and equipment in a 16-room consolidated school building in this village, on a low bid of $5,150.

Perhaps you need one of these

OFTEN a valve problem arises that requires a special design for its correct solution. The valves shown illustrate just a few of the many kinds of valves which Jenkins engineers have developed for a diversity of services.

Among the valves pictured are:

Fig. 750—Bronze Regrinding Union Bonnet Globe Valve. For 200 lbs. steam working pressure.

Fig. 743—New Standard Bronze Globe Needle Valve, with bronze spindle. For close regulation of air, gasoline, and other fluids.

Fig. 124—Standard Bronze Y or Blow-Off Valve. Opening in line with pipe. Renewable disc and seat ring.

Fig. 710—Air gun. Renewable Disc specially compounded for compressed air service. Standard, flat, rounded or extension tip.

Fig. 370—Standard Bronze Gate Valve. Solid wedge.

Fig. 890—Jenkins Iron Body Bronze Mounted Globe Valve, Screwed. Regrinding, union bonnet.

Jenkins
BRONZE IRON STEEL
VALVES
Since 1864

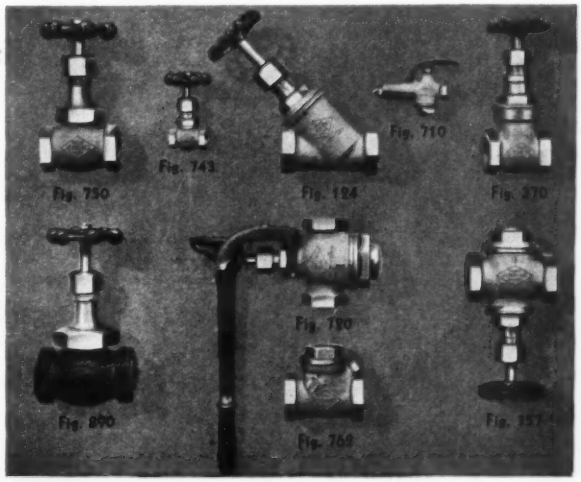


Fig. 720—Bronze Rapid Action Valve for hot or cold water and other fluids. Quick flow, on and off.

Fig. 762—Jenkins Bronze Regrinding Swing Check Valve, Screwed. Renewable bronze clapper.

Fig. 357—Bronze Selclo Valve. For severe service where valve is operated hurriedly or carelessly.

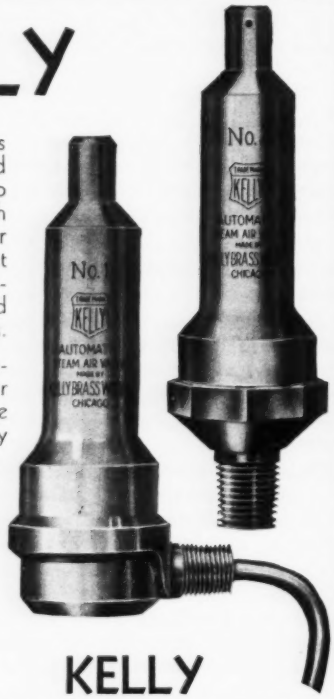
Jenkins Valves in bronze, iron and steel for practically every valve need are obtainable at your supply house. JENKINS BROS., 80 White St., New York, Boston, Chicago, Houston, Philadelphia.

JENKINS VALVES ARE ALWAYS MARKED WITH THE "DIAMOND"

KELLY

For the few dollars investment required to completely equip a heating system with Kelly valves, your customers will get big returns in increased comfort and decreased fuel costs.

Kelly makes a complete line of air valves which are guaranteed to satisfy in every particular for five years. They need no adjustment and cannot be tampered with.



Order from your jobber or write us direct.

KELLY BRASS WORKS

226-32 W. Ontario Street, Chicago

SARCO HEATING SYSTEM

The one thing owners of Sarco Heating Systems admire most is dependability.

They know they can depend on the Sarco to do its part in delivering all the heat required at a minimum cost whenever called upon to do so.

The Sarco Heating System does not meet its owner with a smile one day and with a snarl the next.

It is a stable, steadfast, faithful friend which will not fail when most needed.

If you want to be SURE, install the Sarco.

Catalog M -40 sent on request.

SARCO CO., Inc.
183 Madison Avenue, New York, N. Y.
Branches in Principal Cities

The KAINER PRESSURE GOVERNOR for Hot Water Heating Systems

—Reduces the cost of a hot water layout.
—Eliminates expansion tank and fittings (with its danger of freezing and overflowing).
—Simplifies installation—makes a better job.
—Saves your time and your customers' money.
—Increases your profits and builds good will.

Write us for full information.

KAINER & COMPANY CHICAGO
761-771 MATHER STREET
Manufacturers

Guaranteed

because they don't need it

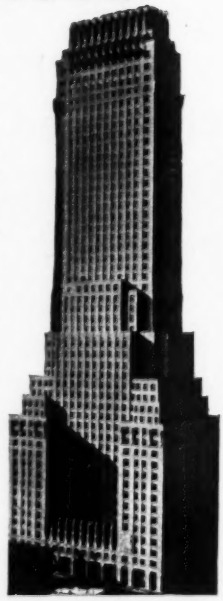
Patterson Hot Water Heaters are sold with a definite, binding guarantee to furnish all the hot water required, as hot as required and as quickly as required—regardless of the requirements of the building.

That guarantee positively protects you, for it is backed by a concern with ample resources and with a 52-year reputation for square dealing.

Remember that when some seeming inducement tempts you to use something "just as good."

Our catalog sent on request.

THE PATTERSON-KELLEY CO.
106 E. 40th St. New York, N. Y.



Chanin Building, New York
Architects: Sloan & Robertson
Engineers: Clark, MacMullen & Riley
Heating Contractors: Jarcho Bros.
Plumbing Contractor: Louis Black

Patterson HOT WATER HEATERS

New Trade Literature

Envelope Stuffer About Grease Stop and Trap

John J. Donovan of Boston, Mass., has issued an envelope stuffer illustrating and describing his grease stop and trap with baffle plate and water-sealed cleanout cover. This trap provides means for preventing grease from restaurant sinks, plaster from dental laboratories and hair from bobbing parlors, etc., from entering drain and causing stoppage.

Catalog of Portable Vacuum Cleaners

Arco Vacuum Corporation Division of American Radiator Co. of New York City has issued a catalog of heavy duty vacuum cleaners of the portable cabinet type suitable for hotel cleaning. This catalog, which is printed in two colors, black and red, consists of 20 pages, 5 ½x8 ¼ in., and illustrates and describes in detail the construction and operation of these vacuum cleaners. The last pages have been reserved for opinions of users—among them some of the best known hotels in the following states: Ohio, Michigan, Pennsylvania, New Jersey, New York and Massachusetts, etc.

A Pipe Tool Catalog

Armstrong Manufacturing Co. of Bridgeport, Conn., has issued a 24-page catalog, 3 ½x6 ¼ in., illustrating and describing in detail its line of pipe tools, including self-guiding chasers for use in 4- and 5-post pipe threaders, ratchet diestocks, 3-way diestocks, solid stocks and dies, hinged pipe vises, kit vises, portable vise stands, pipe rests, and portable vise posts.

About Stokers

Holcomb & Hoke Mfg. Co. of Indianapolis, Ind., has issued a broadside, 11x14 in., with descriptions and illustrations of its stokers, stressing the following features: Separate fan assembly, specially designed deep retort, graduated worm feed, rugged gear assembly, hopper gas eliminator, overload cut-out relay, and feeds—no gears to shift.

Catalog of Underfeed Forced-Draft Stokers

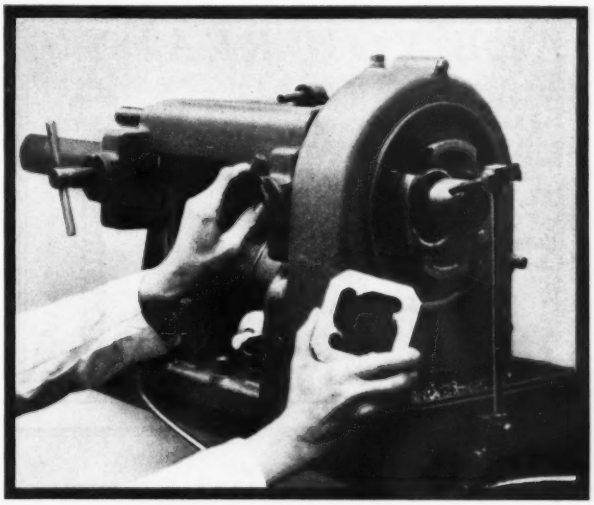
The Econocol Stoker Co. Division of Cotta Transmission Corporation, Rockford, Ill., has issued an attractive 16-page catalog, 8 ½x11 in. in size, describing and illustrating its automatically controlled underfeed forced-draft stokers. The introduction to this catalog emphasizes the following features offered in these units: Automatically controlled heat or power, smokeless combustion, fuel economies, labor saving, automatic hot water supply, ash reduction and even temperature.

About A. C. Induction Motors

In response to numerous requests received from engineers, purchasing agents, electricians, maintenance men and many others for some published source of reference for practical up-to-the-minute information on motors and controls, the Lincoln Electric Co., of Cleveland, Ohio, has inaugurated a publication devoted to matters pertaining to A. C. induction motors. It is called "The Motorizer," and will be published monthly. The columns are devoted to answering questions pertaining to A. C. induction motors.

Catalog of Gas Boilers

Dunkirk Radiator Corporation of Dunkirk, N. Y., has just issued a catalog of its gas boilers which have been tested and approved by the American Gas Association laboratories. The catalog is printed in two colors, black and blue, consists of 12 pages, 9x11 in., and contains complete descriptions with illustrations of the construction and operation of these gas boilers. The value of the catalog is increased by the addition of several tables of dimensions, boiler data and ratings.



Cut Threads this NEW way

AXELSON PORTABLE THREADER embodies desirable features:

A new low price.
Repays its cost on first few jobs.
Light weight plus ruggedness.
Easiest to transport and install.
Quickest in operation.
No skill needed.
Operates from 110-volt light socket.
½ h.p. General Electric Motor.
Reversible power.
Threads cut ½-in. to 2-in. inclusively.
Dies ½, ¾, 1, 1¼, 1½, 2-inches furnished.
Cut-off and reaming attachments furnished.

The Axelson Portable Threader will do anything that any other threader of any size will do and do it as efficiently and economically.

Not only will it thread pipe or bolts from ½ to 2 inches through the cutter die but with a drive shaft attachment will thread the largest size pipe produced. It cuts clean even threads on copper, lead, cast-iron, steel,—in fact any metal pipe. This machine is manufactured by one of the largest and oldest plants on Pacific Coast—established 1892. The coupon brings full information.

AXELSON PORTABLE THREADER

Send This Coupon for Bulletin

AXELSON MFG. CO.
P. O. Box 710, Vernon Station,
Los Angeles, Calif.

Please send, without obligation, Bulletin and prices on the new Axelson Portable Threader.

Name_____

Address_____

City_____ State_____

ARE YOU READY!

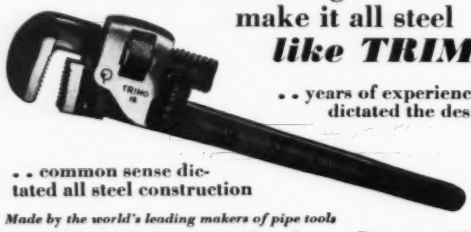
Let's all get off to a flying start in 1932—and let HINDLEY PLUMBERS' SPECIALTIES be one of your Resolutions. But like the regular run of resolutions you will not break the HINDLEY resolution.

See our line in Domestic Engineering Plumbing and Heating Catalog, page 861.

HINDLEY MFG. CO.
Valley Falls, Rhode Island

LOOK FOR OUR CATALOG IN DOMESTIC ENGINEERING CATALOGS

There is no surer way to make a pipe wrench safe and strong than to make it all steel *like TRIMO*



. . years of experience dictated the design

. . common sense dictated all steel construction

Made by the world's leading makers of pipe tools

TRIMONT MFG. CO., Roxbury (Boston), Mass.

SHOW your customers the difference between Overton Roof Flashings and the makeshift kind. They'll buy Overtons *now*. Get a stock on hand from your Jobber.

Order Overtons from your jobber today

BUTLER MFG. CO. MINNEAPOLIS MINNESOTA

4"x5" Oval Float

NO-SOL COPPER FLOATS

No-Sol Floats incorporate all features necessary to the satisfactory performance of a tank float.

Each float is individually tested and guaranteed.

INCORPORATED 1907

The AYLING & REICHERT CO.

3047 N. Erie St. Toledo, Ohio

5" Round Float

New Contractors and Incorporations

Los Angeles, Cal.—The A-One Plumbing Co. has been formed at 6908 Central avenue, by O. J. Madison of 708½ East 83d street and Richard Gorman of 1262 East 87th street.

St. Louis, Mo.—The Southern Heating Co., Inc., has been chartered by Walter Hablutzel, 4122 Juanita street, and others.

Oakland, Cal.—The Sanitary Plumbing Co. has engaged in business at 3267 Adeline street.

Buffalo, N. Y.—The B. and N. Heating Service has been organized here as a partnership, by John Biro Jr., 242 Katherine street and Henry Nagowski, 212 Detroit street, to establish and operate a heating contracting and engineering business.

White Plains, N. Y.—The firm of W. G. Heinze, Inc., has been chartered, with a capital of $50,000, by William G. Heinze and associates, to establish and operate a plumbing engineering and contracting business. Nathan Goldstein, local attorney, represents the new concern.

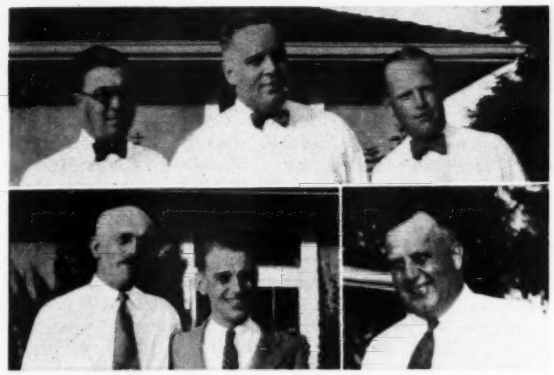
Berkeley, Calif.—The Lyon Company has been formed to engage in the plumbing and heating contracting business by H. W. Lyon and Herb Lyon, and has taken over the plumbing business of A. M. Feary, and will operate in the East Bay district, with headquarters at 889 Ensenada avenue.

Portland, Ore.—B. E. Welsh has engaged in the plumbing and heating business at 355 Everett street.

Pomona, Calif.—H. G. Case & Co. has engaged in the general plumbing and heating contracting business at 351 South Thomas street.

Far Rockaway, Long Island, N. Y.—The firm of I. Koslowsky, Inc., has been chartered, by Irving Koslowsky and associates, to establish and operate a plumbing engineering and contracting business. The new concern, capitalized

Top row, left to right: G. J. Wamsley, John Wood Mfg. Co., Richmond Hill, L. I.; R. P. Marron, Jr., L. O. Koven & Bro., Jersey City, N. J.; A. W. Drake, Grabler Mfg Co., New York City. Bottom row: H. Olsen, Nye Tool & Machine Works, New York City; William Marin, Plumbers' Specialties, Inc., New York City; and C. Donett, Phoenix Brass Fittings Corp., Irvington, N. J. Photos taken at the annual outing of the Brooklyn and Long Island Plumbing Supply Credit Association, held recently at Lindenhurst, N. Y.



Top row, left to right: C. T. Hale, Thomas Grieves and Barney Short, all of United States Radiator Corp. Bottom row: F. Perdue, Rochester; Ralph Cressy, Hoffman Specialty Co., Waterbury, Conn.; and L. N. Castin. Photos taken at recent golf tournament of Western New York Trades Golf Association

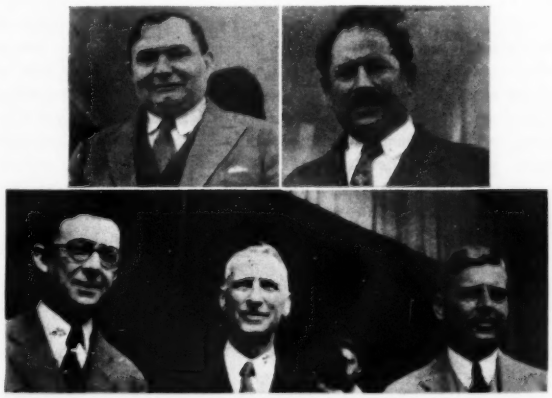
at $20,000, is represented by M. Feldman, local attorney.

New York City—The firm of W. F. Vredenburg and Company, Inc., has been chartered, with a capital of $20,000, by W. F. Vredenburg and associates, to establish and operate a plumbing engineering and contracting business. C. D. Haughey, 101 West Thirty-first street, represents the new company.

New Rochelle, N. Y.—Capitalized at $10,000, the Plen-T-Hot Products, Inc., has been chartered, to establish and operate a plumbing and heating engineering, contracting and service business. B. Vandroff, local attorney, represents the new concern.

Hempstead, N. Y.—The Meadow Brook Plumbing and Heating Company has been organized and incorporated, with a capital of $20,000, to establish and operate a plumbing and heating engineering and contracting business in North Hempstead, N. Y. The new concern is represented by B. Mackler, Westbury, Long Island.

New York City—The Mangan Plumbing Company has been organized and incorporated, with a capital of $5,000, to establish and operate a plumbing engineering and contracting business. A. J. Halprin, 170 Broadway, represents the new firm.



Top row, left to right: Joseph Gordon, president, Gordon Plumbing & Heating Supply Co., Glendale, L. I., N. Y., and Louis Light, president, Louis Light Co., Rosedale, L. I. Bottom picture: William A. Brecht, president, Hajoca Corp., Philadelphia, Pa.; Richard Turner, Wilkes-Barre, Pa., and C. W. Wanger, president, Woodward-Wanger Co., Philadelphia. Photos taken at the annual convention of the New Jersey State Association of Master Plumbers, held recently at Trenton

$3,000 RING *found in bath tub*

THIS departing guest was frantic: A $3,000 diamond ring lost—and he couldn't wait to look for it. With agony in his voice, he called the United Manager. Three hours go by. The guest has gone, but the manager is still on the job.

A wild idea—the Manager pokes a flash-light down the bath tub drain—there's a faint sparkle—plumbers arrive, the drain gives up a $3,000 ring.

Another true story proving that United Managers do the impossible in finding lost articles. This extra service costs the hotel money? Yes, but what of it. Extra service is taken for granted at United Hotels, just like larger rooms per dollar—and handy garage accommodations.

Extra service at these 25

UNITED HOTELS

NEW YORK CITY'S *only United* . . . . The Roosevelt
PHILADELPHIA, PA. . . . . The Benjamin Franklin
SEATTLE, WASH. . . . . The Olympic
WORCESTER, MASS. . . . . The Bancroft
NEWARK, N. J. . . . . The Robert Treat
PATERSON, N. J. . . . . The Alexander Hamilton
TRENTON, N. J. . . . . The Stacy-Trent
HARRISBURG, PA. . . . . The Penn-Harris
ALBANY, N. Y. . . . . The Ten Eyck
SYRACUSE, N. Y. . . . . The Onondaga
ROCHESTER, N. Y. . . . . The Seneca
NIAGARA FALLS, N. Y. . . . . The Niagara
ERIE, PA. . . . . The Lawrence
AKRON, OHIO . . . . . The Portage
FLINT, MICH. . . . . The Durant
KANSAS CITY, MO. . . . . The President
TUCSON, ARIZ. . . . . El Conquistador
SAN FRANCISCO, CAL. . . . . The St. Francis
SHREVEPORT, LA. . . . . The Washington-Youree
NEW ORLEANS, LA. . . . . The Roosevelt
NEW ORLEANS, LA. . . . . The Bienville
TORONTO, ONT. . . . . The King Edward
NIAGARA FALLS, ONT. . . . . The Clifton
WINDSOR, ONT. . . . . The Prince Edward
KINGSTON, JAMAICA, B.W.I. . The Constant Spring

UNITED HOTELS

What Women Are Doing

It's a Great Life If Your Endurance Is Good!

Another complete short story, from the interesting biography of the wife of one of the men in the trade who, as you will find, is doing much to promote her husband's business. This interesting story tells how this clever business woman helps in her husband's office

BY EXPERIENCE and observation I had soon learned that a vibrant pleasing voice on the phone would win many customers, and a listless indifferent sort of a tone would lose equally as many. Did you ever call an office, perhaps when you were in a hurry to get a price on some material from Mr. So and So, only to be answered by a sleepy "Hello," sounding like nothing so much as the tag end of a lazy yawn?

"Is Mr. So and So there?" you ask.

"No, he isn't here," the sleepy voice tells you.

"Well, how soon do you expect him back?"

"I don't know, he didn't say."

"Is there any one there who can quote prices?"

"No ma'am, there isn't."

"And you don't know how I could reach Mr. So and So, when he'll be back, or anything about him?"

"No ma'am, I don't."

There might as well be a lump of lead on the other end of the line as far as getting any worthwhile information is concerned, and after one or two rebuffs of that kind in calling Mr. So and So's office, you will doubtless next time call the office of Mr. Such and Such, his competitor.

I have reason to believe that I have at least been moderately successful in learning to use the telephone. Many a prospect have I dragged out of the woods by a freindly phone conversation. For example a man may call to ask if we handle a certain kind of equipment, and when I tell him that we do, it is as likely as not that he may say, "All right, thank you," and hang up unless I make an effort to prolong the conversation.

"Where do you want to use this equipment," I may ask, "in a residence, a store, or an apartment building?—Oh, yes, in a small residence. Well, we have hundreds of just such installations, very likely several in your part of town, and one should be ideal for your home, too.—How much would it cost? That is a hard question to answer off hand, but we'd be very glad to have a man come out and give you an estimate without obligating you in the least.—You're not ready to buy now and you don't want to be bothered by a salesman.—Very well, but as something to think about I might say that such an installation would cost approximately $400.00, and in the meantime may I send you our latest catalogue on this equipment?—Fine! and what is the name and address, please?"

Thus I have gathered complete information for a prospect card, making notation for a future follow-up, and the man leaves the phone in a friendly frame of mind and scarcely realizing that he has betrayed his identity.

Again it may be a trouble call that by my general knowledge of the business, I can settle over the phone, or it may be a call for service that demands immediate attention and that I can have taken care of quickly because I know just where to reach the proper trouble-shooter. Such close attention to telephone contacts is often tedious and confining, but it all seems very much worthwhile and it makes me very happy, when it happens as it has happened, that some one says to a member of the firm, "Who is the girl on the telephone at your office? She certainly knows the business and is on the job 100%." (To be continued.)

Oakland Auxiliary Hostesses at Big Holiday Party

Music, fun, entertainment and delicious home-cooked refreshments drew a jolly crowd of master plumbers, their wives and children to Plumbers' Hall on the evening of December 21, when the ladies auxiliary of the Oakland, California association entertained with a delightful Christmas party. This year's program was featured by the addition of dancing.

An outstanding part of the evening's enjoyment was contributed by the youngsters, who recited, sang and played. Mrs. W. D. J. Evans, auxiliary president, gave a fitting address of welcome, then turned the program over

to Mrs. Robert Duncan, Jr. A beautifully decorated Christmas tree, heavy with well filled stockings, was presided over by George Stoddard in the role of Santa Claus who saw that every little one was well remembered. Then came refreshments and dancing.

Among the young people who contributed recitations or musical numbers were: Marion and Marjorie Burgelin, Pauline Spiersch, Carmen and Juanita Johnson, Frank Mero, Phyllis and Shirley Picard, Donald, Lois and Delight Durant, Dick and Betty Previati, Earle Casler, Shirley Cook, Virginia Moody, Donald Sheridan, Edward Kruse and Jack Collins. Mrs. Robert Duncan, Jr., headed the committee on arrangements, ably assisted by Mesdames Harry G. Newman, Arthur Johnson, W. H. Picard and Lola Zeis.

National Corresponding Secretary Urges Larger Membership

Mrs. Marcella C. Rose, of Cambridge, Mass., corresponding secretary of the Women's Auxiliary to the National Association of Master Plumbers, requests that the following message be brought to the attention of Auxiliary members throughout the country through the columns of Domestic Engineering:

"We are going to increase the membership in each local auxiliary. We are going to assist the state auxiliary officers in their duties of organizing new auxiliaries. What better New Year's resolution could the members of the master plumbers' auxiliaries resolve?

Mrs. Marcella C. Rose

"The men folks should help in this matter, because there can be no disputing the statement: the larger the master plumbers' auxiliary, the stronger the master plumbers association."

(Signed) Marcella C. Rose,
Corresponding Secretary,
Women's Auxiliary to the N. A. M. P.

Milwaukee Auxiliary Elects New Officers; Plans Busy Year

The Women's Auxiliary of the Milwaukee Master Plumbers' Association re-elected Mrs. Fred Westfahl as president of the organization for the ensuing year, at the annual meeting held at the Elks' club, Milwaukee, Wis. Mrs. Walter Dusold was elected first vice president of the organization; Mrs. A. A. Hoffmann, second vice president, and Mrs. Robert Stemper, third vice president.

Mrs. Peter Vogt was re-elected recording secretary of the organization and Mrs. C. Blackford corresponding secretary. Mrs. Louis Schmaus was chosen treasurer and Mrs. Rose R. Friend was appointed chaplain.

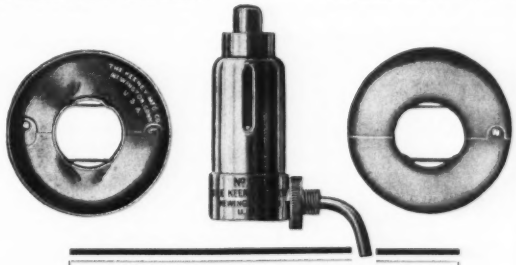
The ladies plan a year of increasing activity during 1932. A Christmas party was held recently, with "Santa Claus" and presents for the children and a general round of holiday fun. The ladies also provided Christmas baskets for the journeyman plumbers who are out of work. Baskets were provided on Thanksgiving day to part of the list of journeyman plumbers in the city who are out of work and the other half of the list were remembered at Christmas time, according to Mrs. C. Black-

KEENEY

The thought of winter naturally brings the thought of heating equipment, especially *old* heating equipment. Quite logically, one of the first things the home owner thinks about are those sputtering air valves which hissed and spit all last winter. He will no doubt remember that he promised himself faithfully that he would replace them before another season rolled around.

That's your cue. That's where you make your entrance, and be sure it's with KEENEY AIR VALVES. Their construction makes it impossible for them to get out of order, allowing the radiators to operate at full heating capacity at all times.

While at it, suggest that you replace his floor and ceiling plates with KEENEY FLOOR AND CEILING PLATES. They have as many talking points as KEENEY AIR VALVES, which is enough for you to make the sale.

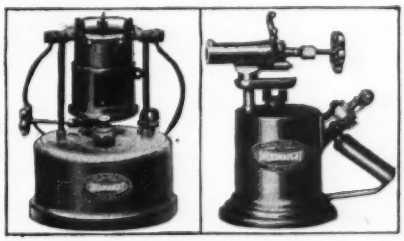


MANUFACTURERS AND WHOLESALERS:
Write for our NEW CATALOG—just off the press

THE KEENEY MFG. COMPANY
NEWINGTON, CONN.

A NEW LINE..
of WALL products
at a NEW LOW PRICE

Write for complete information. Ask for our plumbers' circular.



THOUGH lower in price than ever before, each is a newly developed WALL product designed to serve best your most particular needs, without the sacrifice of typical WALL quality features! It will pay you to get in touch with your jobber at once—or for jobbers to get in touch with us.

P. Wall Mfg. Supply Company · Pittsburgh, Pa.

SINCE WALL SUPERIOR PRODUCTS 1864

DREADNAUGHT
"Service with Safety"
BLOW TORCHES . . . FURNACES AND OILERS

FROST
CLOSET TANK
FITTINGS

FLUSH VALVES
BALL COCKS
FLUSH ELBOWS AND PIPES
SUPPLY PIPES
FLUSH LEVERS

FROST CO. KENOSHA, WIS.

STEEL
IRON
CHALLENGE
NIPPLES
BRASS
COPPER

A PIPING JOB

is no better than the nipples used.
Challenge nipples are made in Steel, Wrot Iron, Brass and Copper. Only first quality selected pipe is used.
Challenge nipples are accurately threaded and uniformly finished to a higher standard than required—yet they cost no more.
Their regular use is a guarantee of permanent satisfaction.
To get Challenge, you must specify Challenge.

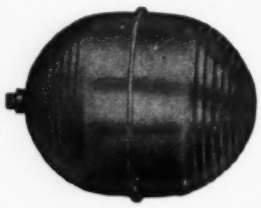
FRICK-REID
Supply CORPORATION
NIPPLE DIVISION
PITTSBURGH, PA.

Toledo Solderless Floats

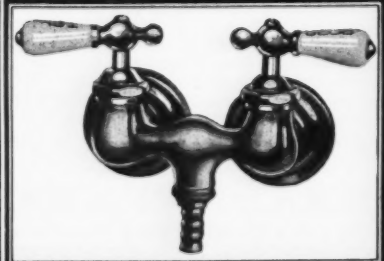
Rust and corrosion hold no terrors for Toledo Solderless Floats.

Water conditions no matter how severe will have no effect upon Toledo's exceptionally fine construction. They will not crack, break or pull apart.

Order them from your jobber today.



THE REICHERT FLOAT & MFG. CO.
2238 Smead Ave. :: Toledo, Ohio



BATH
WISECO
FAUCET

PLUMBERS QUALITY BRASS GOODS

J.B.WISE, INC. SINCE 1877 WATERTOWN, N.Y.

ford corresponding secretary. The first 1932 meeting of the group was held at the Elks' club on Monday, January 4.

New Britain Auxiliary Elects New Officers

The Women's Auxiliary to the New Britain, Conn., Master Plumbers' Association met at the home of Mrs. Juddie Landgren, in Berlin, on the evening of December 10, at which time officers were elected for the ensuing year. Mrs. A. A. Mills was elected president; Mrs. Herman M. Feigenbaum, vice president; Mrs. Fred Loomis, secretary; Mrs. C. A. Hjerpe, treasurer; and Mrs. William R. Fenn, social editor.

Later in the evening the women were joined by their husbands, who had also held their annual meeting and election of officers on the same evening, and Mr. and Mrs. Langren served a luncheon for their guests.

Mrs. E. D. Hornbrook Provides Christmas Feast for Needy Animals

At Christmas time every year, Mrs. E. D. Hornbrook of Kansas City, Mo., past president of the Women's Auxiliary to the National Association of Master Plumbers, provides feed for the needy horses and other animals of the city at her home, 521 Garfield avenue. In the accompanying picture, Mrs. Hornbrook is shown with Bill, a 20-year old horse, who was munching a saucepan filled with rolled

oats when the picture was taken. The Christmas feast for horses consists of a bag of grain and bales of hay and straw. For other animals Mrs. Hornbrook provides something equally favored by the particular species.

She has been carrying on the practice nearly twenty-five years, it having had its origin with her during the Civil War. She was a little girl then, living at Richmond, Va., and she used to feel sorry for the horses when they came in from the fighting all worn out. Mrs. Hornbrook says that the idea of regular Christmas feasts for horses started because of the condition of horses that used to work at Kansas City for a livery stable company.

Death of Mary J. Williams

Mrs. Mary J. Williams, wife of Henry C. Williams, master plumber of Milwaukee, Wis., died at her home in that city on December 6. Burial was at Holy Cross Cemetery in Milwaukee.

Pipe —— Lines
Connected by LyT

A QUESTION OF DIVIDENDS

Father: "I have spent nearly $20,000 on my daughter's education. And now she goes and marries a man who makes only $2,000 a year."

Friend: "Well, that's ten per cent on your investment. What more do you expect in times like these?"

HOW TO PAY A COMPLIMENT

A clergyman and his wife were receiving a call from a parishioner. The clergyman's small daughter, aged nine, walked up to the visitor, gazed at her long and intently, and finally said: "My! But aren't you homely—"

Horrified, the clergyman sought to correct the situation.

"My child!" he cried. "How could you say such a thing? What do you mean?"

The child was, of course, frightened. She stammered: "I only m-m-meant it for a joke."

The clergyman glared, and, to set things right, went on disastrously: "Well, it would have been a much better joke if you had said, 'How pretty you are'." KABLEGRAM

And now, no doubt, a number of people will be looking for new apartments. It doesn't pay to forget the janitor's Christmas gift.

A man was seen one day last week sitting perfectly still. After a time some one asked what he was doing. "Obeying 9,999 laws," he replied. He was, of course, arrested for loitering.

IN THE PARLANCE

Most people unconsciously bring the language of their business over into the other departments of their lives. For example, a railroad conductor had to have a slight operation. The doctor said: "I will give you a local anaesthetic, if you think it's necessary."

Replied the conductor: "Well, Doc, if it's hurt much, I suppose you might as well cut out the local and run me through on a sleeper." THE WEATHER VEIN

KEEPING TIME

"Remember," said the wife of the lawyer to her husband, "to meet me at the Biltomore for lunch at twelve."

"Very well, dear," replied her husband, "but please be there by one, as I have an appointment with a woman client at three, and I can't wait any longer than two if I am to meet her at four."

The efficiency expert was studying the great problem of the world—how to eliminate the waste of the last half-inch of the cigarette. He paced the floor, muttering, for hours. Suddenly he uttered a wild cry. "I have it! I have it! We'll make the cigarettes a half-inch shorter."

MAYBE IT WAS WINDOWS

The gentleman who had inserted the ad was anxious to sell his house. He published a long description of it in the local paper.

Next day a man telephoned him: "Say, is everything in that ad of yours correct?"

"Oh, yes," replied the owner, "everything in the house is exactly as described in the ad."

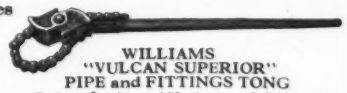
"Very well, then, I'll take the house, and the five widows in the library."

Hiho! A new year, and been so busy in 1931 I haven't had time to break all the resolutions I made a year ago.

L Y T

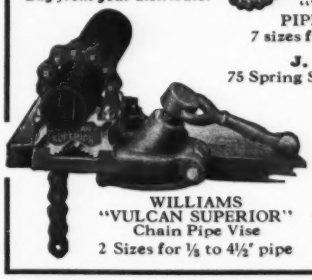
BETTER PIPE TOOLS

Exclusive Advantages
Modern Design
Buy from your distributor



WILLIAMS
"VULCAN SUPERIOR"
PIPE and FITTINGS TONG
7 sizes for ⅛ to 12" pipe and fittings

J. H. WILLIAMS & CO.
75 Spring St. New York, N. Y.



WILLIAMS
"VULCAN SUPERIOR"
Chain Pipe Vise
2 Sizes for ⅛ to 4½" pipe

WILLIAMS
VULCAN
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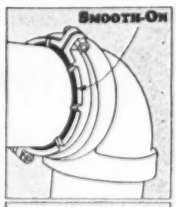
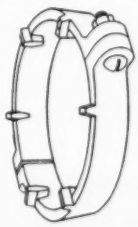
CHAIN PIPE TOOLS

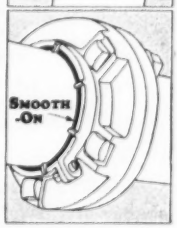
RIVERSIDE TANKS
THE ONE SURE SOURCE OF SUPPLY
COPPER IS PERMANENT
ASK YOUR WHOLESALER FOR PRICES — DETAILS
RIVERSIDE BOILER WORKS INC.
CAMBRIDGE, MASS.

Stop pipe thread leaks with SMOOTH-ON No.1 in a SMOOTH-ON CLAMP
Sizes for 1-in. to 12-in. pipe



QUICK, easy, cheap and dependable. Holds for the life of the line—steam, hot or cold water, gas etc., any pressure, any temperature, iron, brass, or copper pipe. No interference with bolt heads or nuts of flanged joints. Get Smooth-On Clamps and Smooth-On No. 1 from nearest supply house or from us.





Write for the free Smooth-On Handbook.

SMOOTH-ON MFG. CO.
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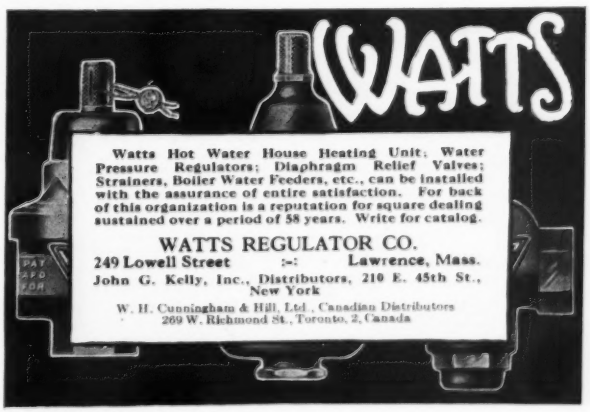
Jersey City, N. J.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Watts Hot Water House Heating Unit; Water Pressure Regulators; Diaphragm Relief Valves; Strainers, Boiler Water Feeders, etc., can be installed with the assurance of entire satisfaction. For back of this organization is a reputation for square dealing sustained over a period of 58 years. Write for catalog.
WATTS REGULATOR CO.
249 Lowell Street :-: Lawrence, Mass.
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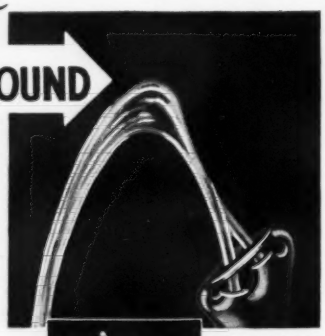
Note the DRINKING MOUND

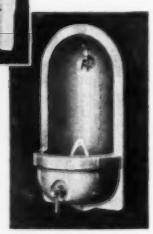
It is a distinguishing and an exclusive feature. The two-stream projector provides a localized drinking mound, practical, sanitary and convenient to drink from under all conditions.



The HALSEY TAYLOR *two-stream projector*

Sanitation Assured

Because Halsey Taylor Drinking Fountains assure maximum sanitation, they are the preferred specifications for schools, hospitals, and for public buildings everywhere. A wide range of practical designs to fit varied needs and expenditures.



Illustrated . . . a popular wall fountain . . . a semi-recess type with glass filler.

The Halsey W. Taylor Co., Warren, O.

HALSEY TAYLOR Drinking Fountains

Have You Any Used Tools?

No doubt you have. Chances are they are laying somewhere around your shop. Possibly new tools have replaced the old. These old tools will bring you *dollars* if advertised in the For Sale columns of DOMESTIC ENGINEERING. Some plumber in some other locality may be waiting to obtain these tools, in good condition, at reduced prices. The very low rate of 8 cents per word makes the Classified Page a good buy.

Domestic Engineering
1900 Prairie Ave. CHICAGO

Bath a Day Movement

177

Is your city or town among the 177 in which "The Story of the Bath" has been distributed to school children for use in health classes? At small cost here is an opportunity for an alert master plumber, or for an association, to secure some splendid publicity

OF ALL of the efforts undertaken by business papers to assist their industries in the important job of publicity, the "Bath A Day Movement" has been cited as the most constructive. Write for full details on school distribution.

Also ask for the Twenty-Minute Program for the use of master plumber members of Kiwanis, Rotary, Lions, and other similar clubs. This material has been used with satisfaction by a number of master plumbers for "Plumber's Day" meetings. There is no charge for the program—and, if you've never read "The Story of the Bath," a copy will be sent to you with our compliments.

Little Sentences That Sell

Write one of these BLACKBOARD EPIGRAMS on your window or bulletin board each day. Many master plumbers and heating contractors find them real business getters.

The shoe dealer always sells his goods at bottom prices.

* * *

Collateral securities are either put up or shut up.

* * *

Isn't the dentist a dealer in extracts?

* * *

It never kills a law to execute it.

* * *

If men were like clocks they could all go on tick.

* * *

The more checks a spendthift has the faster he goes.

* * *

You'll always find a good looking-glass.

* * *

It's poor seed that isn't stronger than the soil.

* * *

Kind words are never lost, but they are frequently mislaid.

* * *

The man in the moon looks like a highball when he is full.

* * *

Hope is the blossom of happiness.

* * *

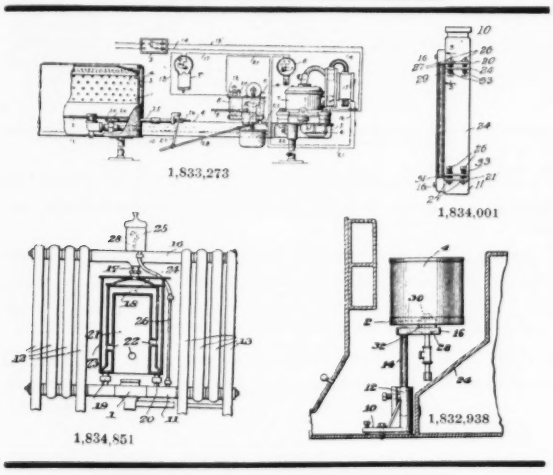
People who never look forward to the future seldom manage to get ahead.

PATENTS

Heating Department

1,833,273. Fuel and Air Control. Walter W. Williams, Bloomington, Ill., assignor to Williams Oil-O-Matic Heating Corporation, Bloomington, Ill., a Corporation of Illinois.

1,834,001. Radiator. Arthur B. Modine, Racine, Wis., assignor to Modine Manufacturing Company, Racine, Wis., a Corporation of Wisconsin.



1,834,851. Gas Heated Hot Water Radiator. Antoni Wilhelm Krul, The Hague, Netherlands.

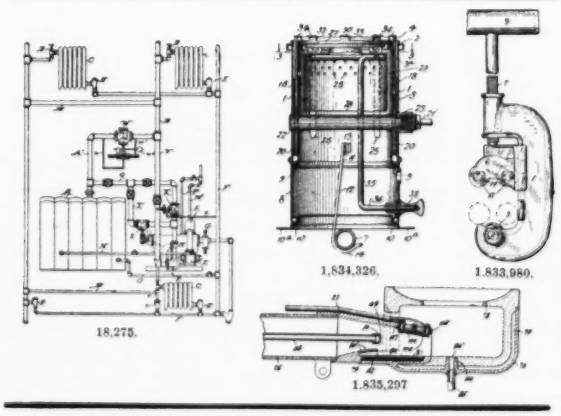
1,832,938. Oil Burner and Support Therefor. Ernest C. Leach, West Peabody, Mass., assignor to Lynn Products Co., Lynn, Mass., a Corporation of Massachusetts.

18,275. Steam Turbine Driven Vacuum Heating Apparatus. Irving C. Jennings, South Norwalk, Conn., assignor to Nash Engineering Company, South Norwalk, Conn., a Corporation of Connecticut.

1,834,326. Oil Burner. Lewis T. Wilcox, Peekskill, N. Y.

1,833,980. Pipe Cutter. William O. Thewes, North Ridgeville, Ohio.

1,835,297. Oil Burner. Winfield S. Grant, Detroit, Mich., assignor to Henry D. Mackaye, Detroit, Mich.



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APPROVED SANITARY SPECIALTIES
JOSAM MANUFACTURING COMPANY
4904 Euclid Bldg. Cleveland, Ohio
FACTORY: MICHIGAN CITY, INDIANA
BRANCHES IN ALL PRINCIPAL CITIES
Floor and Roof Drains, Sewer Valves, Closet Outlet Connections, Interceptors, etc.

SAVE *on gas bills!*
That's what everyone of your customers is trying to do—get gas bills down as low as possible. With a BARBER Gas Pressure Regulator on any gas appliance, gas bills will be much lower. Show one to your customers, take the orders and the profit. Write for details.
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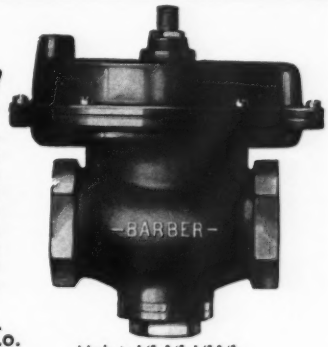

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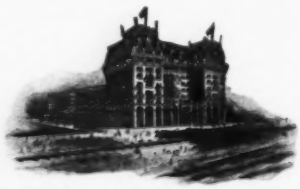

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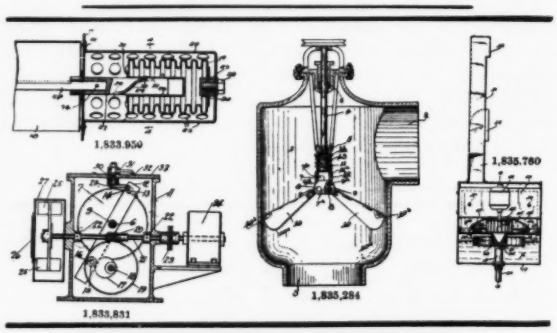

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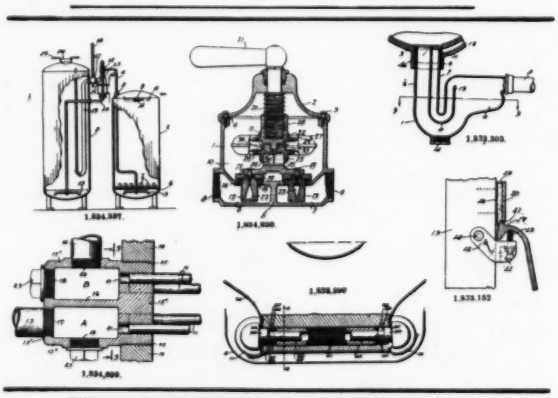
1,834,387. Water Softening Apparatus. Andrew J. Dotterweich, Pittsburgh, Pa., assignor to Automatic Water Softener Company, Pittsburgh, Pa., a Corporation of Delaware.

1,834,680. Mixing Valve. Harry Chartrand, Chicago, Ill.

1,833,303. Waste Trap. Charles A. Pritchard, Palo Alto, Calif.

1,834,699. Water Heater Attachment. Lewis Glashow, New York, N. Y.

1,833,890. Concealed Check Toilet Seat Hinge. William A. Carmichael, Hamden, Conn., assignor to C. F. Church Mfg. Co., Chicopee, Mass., a Corporation of Massachusetts.



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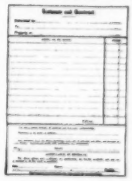

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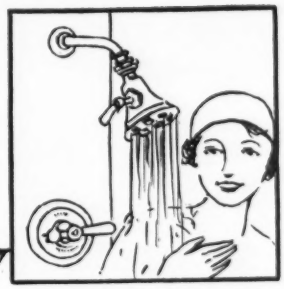
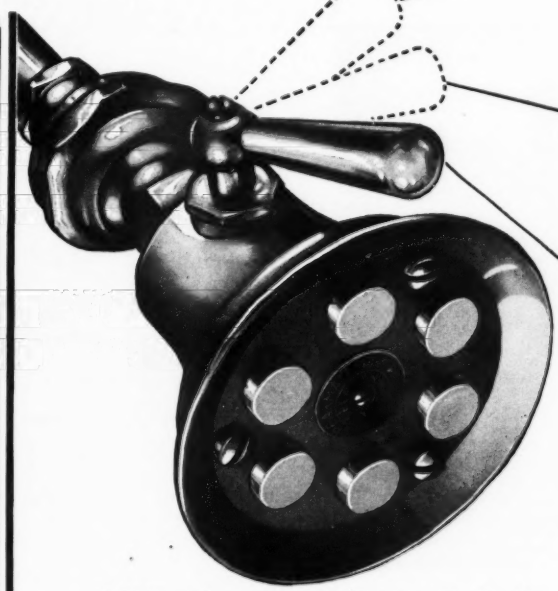


FLOOD SHOWER

NORMAL SHOWER

NEEDLE BATH



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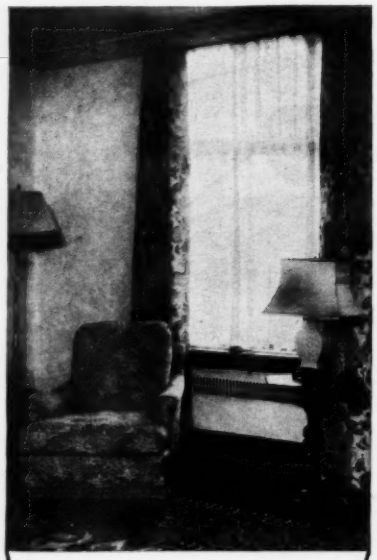

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